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ANNUAL REPORT

OF THE

Illinois Farmers' Institute 99522

WITH REPORTS OF

COUNTY FARMERS' INSTITUTES

FOR THE YEAR 1899.

SPRINGFIELD, ILL :
PHILLIPS BROS., STATE PRINTERS.
1899.

LETTER OF TRANSMITTAL.

To His Excellency, JOHN R. TANNER, Governor of Illinois.

SIR:—I have the honor to transmit the report of the Illinois Farmers' Institute for 1898 and trust an inspection of its contents will satisfy you that the funds appropriated by the General Assembly, for the advancement of useful education among the farmers, and for developing the agricultural resources of the State, have been wisely expended.

Respectfully submitted,

A. B. HOSTETTER,

Secretary.

ILLINOIS FARMERS' INSTITUTE.

CREATED BY ACT OF THE THIRTY-NINTH GENERAL ASSEMBLY.

Officers March 1, 1899, to March 1, 1900.

President—G. A. Willmarth.....Seneca
Vice-President—L. N. Beal.....Mt. Vernon
Treasurer—A. P. Grout.....Winchester
Secretary and Superintendent of Institutes—A. B. Hostetter.....Springfield

BOARD OF DIRECTORS.

Ex Officio.

State Superintendent of Public Instruction—Alfred Bayliss.....Springfield
President State Dairyman's Association—Geo. H. Gurler.....DeKalb
Dean of College of Agriculture—Eugene Davenport.....Urbana
President State Board of Agriculture—W. H. Fulkerson.....Jerseyville
President State Horticultural Society—Henry M. Dunlap.....Savoy

ELECTIVE BY CONGRESSIONAL DISTRICTS.

First.....	District—Chas. H. Dolton.....	Dolton Station
Second.....	W. R. Goodwin, 1108-358 Dearborn street.....	Chicago
Third.....	Sara Steenberg, 145 LaSalle street.....	Chicago
Fourth.....	John M. Clark, 960 Warren avenue.....	Chicago
Fifth.....	James Frake, 132 LaSalle street.....	Chicago
Sixth.....	Wm. Stewart, 623 Dearborn avenue.....	Chicago
Seventh.....	C. J. Lindemann, 145 LaSalle street.....	Chicago
Eighth.....	C. D. Bartlett.....	Bartlett
Ninth.....	Amos F. Moore.....	Polo
Tenth.....	J. H. Coolidge.....	Galesburg
Eleventh.....	G. A. Willmarth.....	Seneca
Twelfth.....	F. I. Mann.....	Gilman
Thirteenth.....	S. Noble King, Box 295.....	Bloomington
Fourteenth.....	Oliver Wilson.....	Magnolia
Fifteenth.....	G. W. Dean.....	Adams
Sixteenth.....	A. P. Grout.....	Winchester
Seventeenth.....	Charles F. Mills.....	Springfield
Eighteenth.....	E. W. Burroughs.....	Edwardsville
Nineteenth.....	D. H. Shank.....	Paris
Twentieth.....	L. N. Beal.....	Mt. Vernon
Twenty-first....	W. R. Kimzey.....	Tamaroa
Twenty-second..	H. G. Easterly.....	Carbondale

STANDING COMMITTEES.

Executive Committee.

G. A. Willmarth,	S. Noble King,	W. R. Kimzey,
C. J. Lindemann,	D. H. Shank,	L. N. Beal.

State Institute Meeting Committee.

Oliver Wilson,	Chas. F. Mills,	A. P. Grout,
L. N. Beal,	C. D. Bartlett,	G. A. Willmarth.

Committee to Select Speakers for County Institutes.

J. H. Coolidge,	Alfred Bayliss,	Amos F. Moore,
G. W. Dean,	W. R. Kimzey,	G. A. Willmarth.

Legislative Committee.

A. P. Grout,	H. M. Dunlap,	W. H. Fulkerson,
Geo. H. Gurler,	J. H. Coolidge,	G. A. Willmarth.

Organizing Township Institutes.

Chas. F. Mills,	Amos F. Moore,	F. I. Mann,
C. J. Lindemann,	W. R. Goodwin,	G. A. Willmarth.

Special Features for Improving County Institutes.

H. M. Dunlap,	Chas. H. Dolton,	E. W. Burroughs,
C. D. Bartlett,	W. H. Fulkerson,	G. A. Willmarth.

Committee on Domestic Science Association.

Sara Steenberg,	S. Noble King,	Eugene Davenport,
Wm. Stewart,	E. W. Burroughs,	G. A. Willmarth.

Agricultural Education and Library Committee.

Eugene Davenport,	James Frake,	H. G. Easterly,
D. H. Shank,	F. I. Mann,	G. A. Willmarth.

ORGANIZATION ILLINOIS FARMERS' INSTITUTE.

CREATED BY ACT OF 39TH GENERAL ASSEMBLY.

OFFICERS MARCH 1st, 1898, TO MARCH 1st, 1899.

President—Amos F. Moore.....	Polo
Vice President—G. A. Willmarth.....	Seneca
Secretary—Charles F. Mills.....	Springfield
Treasurer—A. P. Grout	Winchester
Supt. of Institutes—Charles F. Mills.....	Springfield

BOARD OF DIRECTORS.

Ex-Officio.

State Supt. of Public Inst., Alfred Bayliss.....	Springfield
Dean of State Agr. Col., Eugene Davenport.....	Urbana
President State Bd. of Agr., W. H. Fulkerson.....	Jerseyville
President State Hort. Soc., H. M. Dunlap.....	Savoy
President State Dairyman's Assn., Geo. H. Gurler.....	DeKalb

Elective.

1st District, Chas. H. Dolton.....	Dolton
2d District, Jonathan Perlam.....	Chicago
3d District, Sara Steenberg	Chicago
4th District, F. C. Rossiter.....	Chicago
5th District, James Frake.....	Chicago
6th District, William Stewart.....	Chicago
7th District, C. J. Lindmann.....	Chicago
8th District, C. D. Bartlett	Bartlett
9th District, A. W. Moore.....	Polo
10th District, J. E.	Galesburg
11th District, G. Rth.....	Seneca
12th District, F.	Gilman
13th District, S. E.....	Bloomington
14th District, O. D.....	Magnolia
15th District, G.	Adams
16th District, A.	Winchester
17th District, C. ills.....	Springfield
18th District, A. yer.....	Hillshoro
19th District, D.	Paris
20th District, L.	Mt. Vernon
21st District, W. y	Tamara

STANDING COMMITTEES.

Legislative—Grout, Dunlap, Dean, Dolton, King, Mills and Moore.
 Executive—Moore, Beal, Dolton, King and Willmarth.
 Program State Institute Meeting—Mills, Davenport, Bayliss, Rossiter and Moore.
 Exhibit State Institute Meeting—Beal, Gurler, Dunlap, Shank and Moore.
 Speakers' County Institute Meeting—Dean, Dunlap, Davenport, Mills and Moore.
 Systematizing and Organizing County Institutes—Wilson, Stewart, Sawyer, Steenberg and Moore.
 Special Features for the Improvement of County Institutes—Kimzey, Bartlett, Coolidge, Lindemann, Mann, Periam, Fulkerson and Moore.
 Library—Willmarth, Beal, Davenport, Periam and Mills.

AN ACT CREATING THE ILLINOIS FARMERS' INSTITUTE.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That to assist and encourage useful education among the farmers, and for developing the agricultural resources of the State, that an organization under the name and style of "Illinois Farmers' Institute" is hereby created, and declared a public corporation of the State.

§ 2. It shall consist of three delegates from each county of the State, elected annually at the Farmers' Institutes for said county by the members thereof.

§ 3. The affairs of the Illinois Farmers' Institute shall be managed by a board of directors, consisting of

1. State Superintendent of Public Instruction.
2. Professor of Agriculture of the University of Illinois.
3. President of the State Board of Agriculture.
4. President of the State Horticultural Society.

5. President of the State Dairymen's Association, and one member from each congressional district of the State, to be selected by the delegates from the district present at the annual meeting of this organization: *Provided*, that the members first selected from the congressional districts of even number shall serve for one year, and the members first selected from the congressional districts of odd numbers shall serve for two years, and that the members selected thereafter to fill expired terms of office shall serve for the period of two years.

§ 4. The board of directors of the Illinois Farmers' Institute shall have sole care and disposal of all funds that may be appropriated by the State to sustain the organization, and shall expend the same in such manner as in their judgment will best promote the interest in useful education among the farmers and develop the agricultural resources of the State. The Illinois Farmers' Institute shall make annual report to the Governor of its transactions, which report shall include papers pertaining to its work and addresses made at the annual meeting of the organization, and a classified statement of all moneys received and of all expenditures made, and the Governor shall cause ten thousand (10,000) copies of said report to be printed, one-half for the use of the Illinois Farmers' Institute, and the re-

mainder for the use of the State and General Assembly. It shall make no appropriation without funds in hand to meet same, and the State of Illinois shall in no event be held liable or responsible for debt, obligation or contract made by the Illinois Farmers' Institute or its board of directors.

§ 5. There shall be held annually, under the direction of the board of directors, between October 1 and March 1 following of each year, a public meeting of the delegates from County Farmers' Institutes and of farmers of this State, at such time and place as may be determined by the board of directors, of not less than three (3) days' duration, which meeting shall be held for the purpose of developing the greater interest in the cultivation of crops, in the care and breeding of domestic animals, in dairy husbandry, in horticulture, in farm drainage, in improved highway, and general farm management, through and by means of liberal discussions of these and kindred subjects, and any citizen may take part in these meetings, but only duly elected and accredited delegates from County Farmers' Institutes shall be permitted to vote in the election of the board of directors.

§ 6. The members of each new board of directors shall enter upon their duties the next Tuesday after their election, and hold their offices for one or two years, as provided in section 3, or until their successors are elected and enter upon their duties. It shall have power to fill vacancies in the board. It shall organize by the election of a president, vice-president, secretary, treasurer and state superintendent of farmers' institutes, and such other officers or agents as may be deemed proper for organizing and conducting the work of the organization, who shall hold their offices for one (1) year, unless removed sooner by the board, and shall perform such duties as may be required of them by rules of the board. The secretary, treasurer and superintendent may be other than members of the board.

§ 7. Rooms in the capitol building shall be assigned to the officers of this organization by the proper authority, which shall then be under the control of the board of directors.

§ 8. The board of directors may make and enforce such rules and by-laws, not in conflict with the laws of this State, as will render its work most useful and efficient.

§ 9. For the purpose mentioned in the preceding sections, said board of directors may use such sum as it may deem proper and necessary, not exceeding the amount appropriated therefor by the General Assembly from the general fund for that purpose: *Provided, further,* that the

1. State Superintendent of Public Instruction,
2. Professor of Agriculture of the University of Illinois,
3. President of the State Board of Agriculture,
4. President of the State Horticultural Society,
5. President of the State Dairymen's Association,

And the present congressional representatives of the Illinois Farmers' Institute Association shall constitute the first board of directors of this organization, who shall have charge of the affairs of the same until their successors have been duly elected, and enter upon their duties as provided in this act.

AN ACT making appropriations for the Illinois Farmers' Institute and County Farmers' Institutes.

WHEREAS, To assist and encourage useful education among farmers and for developing the agricultural resources of the State, the Thirty-ninth General Assembly created an organization under the name and style of the Illinois Farmers' Institute, and entrusted to it the development of greater interest in the cultivation of crops, in the breeding and care of domestic animals, in dairy husbandry, in horticulture, in farm drainage, in improved highways and general farm management, through and by means of liberal discussions of these and kindred subjects; and for improving the condition of the farmer by affording a better knowledge of successful agriculture. Therefore, to sustain the same,

Be it enacted by the People of the State of Illinois, represented in the General Assembly: That there be, and is hereby, appropriated to the Illinois Farmers' Institute the following sums, to-wit:

SECTION 1. For expressage, postage, office expenses, furniture, etc., the sum of one thousand three hundred dollars (\$1,300) per annum for the years 1899 and 1900.

§ 2. For the expense of collecting matter and preparing manuscript, editing the annual report and bulletins, stenographer, clerk hire, etc., the sum of one thousand seven hundred dollars (\$1,700) per annum for the years 1899 and 1900.

§ 3. For the actual expense of district directors, and of able and practical speakers to be furnished by the Illinois Farmers' Institute, to the County Farmers' Institutes, for the purpose of assisting in making their meetings of general interest and of the greatest practical benefit; for the expense of organizing county institutes, for the expense of printing program, advertising of speakers and exhibit at the State institute, the sum of five thousand dollars (\$5,000) per annum for the years 1899 and 1900: *Provided*, that county institutes or their representatives shall be permitted to select their own speakers and to have such topics for consideration as shall be of interest to their respective localities.

§ 4. For the use of each County Farmers' Institute, the sum of seventy-five dollars (\$75) per annum for the years 1899 and 1900, to be paid the treasurer of each County Farmers' Institute, when such institute shall file with the secretary of the Illinois Farmers' Institute a sworn statement which shall show that said County Farmers' Institute has held one or more duly advertised public sessions annually of not less than two days each, at some easily accessible location,

which shall include an itemized exhibit of the expenses of said meeting, with receipted vouchers therefor, a copy of its printed program, and the printed proceedings, showing title and author of the papers read and by whom discussed, place or places of meeting, with daily average attendance, and such other information as may be called for by the Illinois Farmers' Institute and necessary to successfully assist this work.

§ 5. No officer or officers of any County Farmers' Institute shall be entitled to or receive any moneyed compensation whatever for any services rendered the same.

§ 6. That, on the order of the president, countersigned by the secretary of the Illinois Farmers' Institute, and approved by the Governor, the Auditor of Public Accounts shall draw his warrant on the Treasurer of the State of Illinois in favor of the Treasurer of the Illinois Farmers' Institute for the sums herein appropriated: *Provided*, that each warrant on account of a County Farmers' Institute shall show the county institute for whose benefit the same is drawn: *Provided further*, that the program and printed proceeding of the County Farmers Institute, for which each warrant is drawn, shall show that the following topics have been presented and discussed, viz.: grain farming, stock feeding and breeding, dairy husbandry, orchard and small fruit culture, farmers' garden, domestic science, and any other subjects pertaining to farm life: *Provided further*, that if the necessary expense of a County Farmers' Institute shall not equal the sum of seventy-five dollars (\$75) as aforesaid, then said warrant shall only be drawn for the sum expended.

§ 7. It shall be the duty of the treasurer of the Illinois Farmers' Institute to pay over to the treasurer of each County Farmers' Institute the said sum of seventy-five dollars (\$75), or so much thereof as may be received for its use and benefit as aforesaid, and make annual report to the Governor as provided by law.

APPROVED April 11, 1899.

ANNOUNCEMENT.

The General Assembly, appreciating the great benefits resulting from the holding of Farmers' Institute meetings, passed a law creating the Illinois Farmers' Institute, for the purpose of developing a greater interest, through said organization, in the better cultivation of crops, in the care and breeding of the most profitable type of domestic animals, in extending dairy husbandry, promoting horticulture, directing attention to the importance of farm drainage, stimulating the spirit of improvement in the construction of the public roads and discussing the best methods of general farm management.

The board of directors of the Illinois Farmers' Institute fully appreciates the magnitude of the work to be accomplished to meet the expectations of the intelligent and progressive element represented by the organization.

The members of the board are under many obligations to the progressive farmers of the State for assurances of their earnest purpose to contribute to the success of the institute work, and for hearty co-operation received.

In presenting the program for the fourth annual meeting of the Illinois Farmers' Institute, the directors have every reason to congratulate the public on the recognized ability of the speakers who have volunteered their services and the wide range of topics to be discussed by the gentlemen named on the following pages.

The speakers announced have signified their acceptance of the invitation to attend, and will be present and address the institute.

This meeting is held under the auspices of the Illinois Farmers' Institute. It is free to all. A large attendance of farmers and all others interested in agricultural matters is requested. Ladies and young people are especially invited. Representatives of the press are welcome to all the sessions.

The Question Box—This is intended for use in the way of writing out any question connected with the program, concerning which you would like information. Hand the question to the chairman and it will be answered, and may lead to valuable discussion.

The topics named in the program will be open for general discussion, in which all are invited to participate.

Come prepared to take part and help make this a profitable meeting. Bring blank book and pencil, and take down points of interest you wish to remember for future reference.

Bring this programe with you.

ILLINOIS FARMERS' INSTITUTE

CONVENTION OF DELEGATES.

TUESDAY, FEBRUARY 21, 1899.

MORNING SESSION—9 O'CLOCK A. M.

APPOLLO HALL, PRINCETON, ILL.

HON. AMOS F. MOORE, *Chairman.*

Music.

Prayer—Rev. John J. Whipple, Pastor of M. E. Church, Princeton.

Address of Welcome—Hon. R. M. Skinner, Mayor of Princeton.

Response—Hon. A. P. Grout, Winchester.

Music.

Presidents Address—Hon. Amos F. Moore, Polo.

Report State Superintendent of Institutes—Col. Charles F. Mills, Springfield.

Report of the condition of the Farmers' Institute work in the several congressional districts by the directors representing the same, viz.:

1st D	.....	Dolton
2d D	.....	526 Englewood Av., Chicago
3d D	.....	145 LaSalle St., Chicago
4th I	.....	91, Washington St., Chicago
5th I	.....	132 LaSalle St., Chicago
6th I	.....	623 Dearborn Av., Chicago
7th I	.....	145 LaSalle St., Chicago
8th I	.....	Bartlett
9th I	.....	Polo
10th I	.....	Galesburg
11th I	.....	Seneca
12th I	.....	Gilman
13th I	.....	Bloomington
14th I	.....	Magnolia
15th I	.....	Adams
16th I	.....	Winchester
17th I	.....	Springfield
18th I	.....	Hillsboro
19th I	.....	Paris
20th I	.....	Mt. Vernon
21st I	.....	Tamaroa
22d District.	.....

Address by delegates representing County Farmers' Institutes.

Adjournment.

AFTERNOON SESSION—1:30 OCLOCK.

MRS. S. NOBLE KING, *Presiding.*

WOMAN'S SESSION.

Music.

Address—Mrs. Joseph Carter, President Illinois Association Domestic Science, Champaign.

Address—Mrs. Henry M. Dunlap, Savoy, Chairman from a committee from the Federation of Women's Clubs, to further the interests of women students at the University of Illinois.

Nutrition—Mrs. Emma S. Lovejoy, Princeton.

Our University—Mrs. Mary Turner Carriel, Member of Board of Trustees of the University of Illinois, Jacksonville.

Music.

The profession of Housekeeping—Mrs. Nellie S. Kedzie, Professor of Domestic Economy Bradley Polytechnic Institute, Peoria.

TUESDAY, FEBURARY 21, 1899.

EVENING SESSION—7:30 O'CLOCK P. M.

EUGENE DAVENPORT—*Chairman.*

Dean of College of Agriculture.

EDUCATIONAL SESSION.

Music.

Address—"Agriculture in the Primary Schools," Prof. L. P. Roberts, Dean College of Agriculture, Cornell University.

Address—"The Farmers' College," Hon. Alfred Bayliss, State Supt. Public Instruction, Illinois.

Address—"Higher Education for the Masses," Hon. Andrew S. Draper, President University of Illinois.

Discussion of above addresses.

WEDNESDAY, FEBRUARY 22, 1899.

MORNING SESSION—10 O'CLOCK A. M.

HON. G. A. WILLMARTH, *Chairman.*
Vice President Illinois Farmers' Institute.

MARKETING FARM CROPS.

Music.

Prayer—Rev. James M. McLaren, Pastor Congregational Church, Princeton.

Address—"Marketing Field Crops," Hon. S. T. K. Prine, Chicago.

Address—"Marketing Fruit and Vegetables," Mr. G. W. Barnett, Chicago.

Address—"Marketing Fat Stock," Mr. D. C. Wagener, Union Stock Yards, Chicago.

Address—"Marketing Poultry," Mr. P. H. Sprague, Chicago.

Address—"Marketing Dairy Products," Mr. John Newman, President Elgin Dairy Board Trade, Elgin.

WEDNESDAY FEBRUARY 22, 1899.

AFTERNOON SESSION—1:30 P. M.

HON. A. P. GROUT, *Chairman.*
President Illinois Live Stock Association.

LIVE STOCK AND DAIRY SESSION.

Music.

Address—"Better Live Stock for Illinois," Prof. Eugene Davenport, Dean College of Agriculture, Urbana.

Address—"Sale of Pure Bred Stock," Mr. Fred H. Rankin, Secretary Illinois Live Stock Breeders' Association, Athens.

Address—"How to Make a Success of the Dairy Business," Hon. G. H. Gurley, President Illinois Dairymen's Association, DeKalb.

Address—"The Dairy Industry in Illinois" Mr. J. H. Monrad, Winnetka.

EVENING SESSION, 7:30 O'CLOCK P. M.

MRS. R. J. OGLESBY, *Presiding.*

THE FARM HOME.

Music.

Address—"The Architecture of the Farm Home," John I. Rinaker, Jr., Springfield.

Address—"The Surroundings of the Farm Home," Hon. Arthur Bryant, Princeton.

Music.

Address—"The Health and Sanitary Condition of the Farm Home," P. H. Wensel, M. D., Moline.

Address—"The Social Atmosphere of the Farm Home," Mrs. I. W. Richards, Joliet.

CONVENTION OF DELEGATES ILLINOIS FARMERS' INSTITUTE.

HON. A. F. MOORE, *Chairman.*

The delegates from the several congressional districts will meet for conference at 8:30 o'clock a. m., Thursday, February 23, 1899, to select directors for the Illinois Farmers' Institutes for the congressional districts of even numbers as provided in the act of the General Assembly creating the same, and after the reports by congressional delegations of the election of directors to serve for the ensuing two years as members of the Illinois Farmers' Institute, the program for the morning session will be considered.

THURSDAY, FEBRUARY 23, 1899.

MORNING SESSION—9:30 O'CLOCK, A. M.,

COL. W. H. FULKERSON, *Chairman.*
President Illinois State Board of Agriculture.

FARM ECONOMICS.

Music.

Prayer—Rev. Ernest Evans, pastor M. E. church, Princeton.

Address—"Woman's Building on State Fair Grounds," Mrs. R. J. Oglesby, Elkhart.

Address—"Profits in the By Products of the Farm," Mr. J. M. Hollingsworth, Ridge Farm.

Address—"Foods: Their Cost and Value," Prof. H. S. Grinley, Professor of Chemistry, University of Illinois, Urbana.

Address—"Waste on the Farm," Prof. P. G. Holden, Professor Agricultural Physics, University of Illinois, Urbana.

AFTERNOON SESSION—1:30 O'CLOCK P. M.

HON. CHARLES BOGARDUS, *Chairman.*

THE FARMER AS A FACTOR.

Music.

Address—"The Farmer as a Producer," Hon. J. Hyde, Statistician U. S. Department of Agriculture, Washington.

Address—"The Farmer as a Citizen," Prof. Joseph Carter, Champaign.

Address—"The Railroad and the Farmer," Mr. P. S. Eustis, Gen. Pass. Agt. C., B., & Q. Rd. Co., Chicago.

PROCEEDINGS OF THE FOURTH ANNUAL MEETING OF THE ILLINOIS FARMERS' INSTITUTE

HELD IN APOLLO HALL, AT PRINCETON, BUREAU COUNTY, ILLINOIS,
ON FEBRUARY 21, 22 AND 23, 1899.

The meeting was called to order by Hon. Amos F. Moore, of Polo, Illinois, President of the Illinois Farmers' Institute, at 9 o'clock a. m., February 21, 1899.

Piano Solo—Miss Jennie Smith, Princeton.

The President: The Rev. John J. Whipple, pastor of the Methodist Episcopal Church, of Princeton, Illinois, will open the fourth annual meeting of the Illinois Farmers' Institute with prayer.

Prayer of Rev. John J. Whipple, offered at the opening of the morning session, Tuesday, February 22, 1899:

O God, we thank Thee for all the multiplied gracious privileges which have come to us in this our day and generation. We praise Thee for all that has made life more comfortable, that has made our homes happier, that has enlarged our ideas and given us a larger life. We thank Thee for the blessings which have entered into our homes and made them brighter, and labor more easy. We thank Thee for all those inventions which have come to us through the power of great men, which have enabled us to do our work so much easier and better than in the years gone by.

AMOS F. MOORE.

We remember to thank Thee for the wondrous fertility of our fields of this widespread domain; for the freedom of this land we love, and for those glorious heroes who gave their lives in her behalf. We thank Thee for the public schools, for all the institutions of learning, for all that has come to minister to our comfort, for the church and its blessings.

And we thank Thee that man is learning his great lesson—that when he is at his best he is working with God. We thank Thee for this great commonwealth, for its splendid prosperity and fertile fields. We thank Thee for the coming among us of this representative body. We pray that this convention may be a blessing to us and those who are here as strangers.

We ask Thy blessing upon this great nation, this great commonwealth of Illinois. Make it one of the great states of this great galaxy. May Thy blessing rest upon the President. In all that goes to make our civilization, may we ask strength from Almighty God. Guide us in life's journey, and bring us by and by to where the fields are ever blooming and where all is blessed; we ask in Thy name.

Vocal Solo—Miss Grace Harrington, Princeton.

The President: We will now have the pleasure of listening to the address of welcome by Mayor R. M. Skinner, of Princeton, Illinois.

R. M. Skinner, mayor of Princeton, Illinois, delivered the following address:

Mr. President, Ladies and Gentlemen and Delegates of the Illinois Farmers' Institute:—The Greeks remind us of a class of people that were known for their elegance in sculpture, their superiority in literature, the prowess of their armies and their gladiators. The Romans represented a nation of great warriors—a nation of literature, of poetry, of fancy and of painting. In later periods were the Germans, a plodding, meditative, successful, thoughtful nation. The French, with their elegant and polite manners, their onward rush to civilization. Our brother kinsmen, the English, thoughtful, progressive—a great people. The Spaniards—a lot of bull fighters.

Here in America we possess all the traits that have been possessed by the great nations that have preceded us and that are now in existence. We have every industry under the sun in this age and generation. The people of the various avocations have formed combinations and associations for the betterment of their respective classes. Thus the carpenters have their unions, the politicians have their conventions, the clubs of various sorts have their meetings, the statesmen their assemblages, the doctors have their meetings, the lawyers their gatherings—throughout the State and nationally—the firemen have their meetings, and talk over the things that concern their advance and welfare.

America, great in many ways, has a larger class devoted to the interests of agriculture and to the various pursuits connected with the farming industry than any other class within our borders. Washington said that agriculture was the healthiest, the wealthiest and the most noble employment of man. That it is the healthiest today no one will dispute, that it is the wealthiest is subject to doubt. That it is as noble an employment today as it ever was will be conceded by all people.

Our own imperial State has done itself great credit by granting your association a charter. You are now a legal entity, an organization that can do great good, not only in our own State, but can exert its influence throughout the United States. You have the power of this State of more than four million people behind you. That you should meet annually in convention, assemble and discuss the various things that concern your welfare, and thus be able to compete with other industries and institutions, is one of the gratifying features of this age and time.

I notice by the program that the discussions that are to take place at this meeting can not but result in great good. You are to hear from master minds upon various topics, such as how to produce certain animals that are to be raised upon the farm, how to produce most successfully certain crops that concern the welfare and prosperity of the farmer, how to teach the young idea how to shoot in the common schools, in the interests of agriculture and farming; how to found agricultural colleges; how to found, maintain and support great universities that shall spread knowledge abroad in relation to these great industries, upon which the prosperity of this nation stands, more than upon any other.

As the representative of our little municipality, it affords me great pleasure and great joy to extend to you and to those who will attend this convention a most hearty and cordial greeting. We feel that we can entrust to your hands the safe keeping of our little city, and, metaphorically speaking, we hand the keys over to you, that you may have the freedom of our city, and that you

may share with us our comforts and joys. I would confer upon you the degree of aldermen, except it would at this period sound of boodleism; but happy am I to say that it has not come to pass that mayors, as a rule, are suspected of that folly. Therefore, I confer upon you all, ladies and gentlemen, for the time being, the degree of mayors; to people that have as great an interest and great an influence and great a right as the greatest mayor of the greatest city, in the capacity in which you respectively stand.

Now I hope that when you leave our town, in future years your minds may run back to this meeting, to the good it has accomplished, to the healthy influences it has extended over the community, and that you may look back upon your few days here, in future years, and that they may appear as an oasis upon the desert of life, bright and beautiful in your memories.

The President: Hon. A. P. Grout, of Winchester, will respond to Mayor Skinner's address.

Hon. A. P. Grout delivered the following response:

Mr. Chairman, Ladies and Gentlemen:—As a representative of the Illinois Farmers' Institute, it affords me great pleasure, Mr. Mayor, to accept your hearty welcome, and through you, the hospitality of your beautiful and enterprising city, so kindly and freely tendered this representative body of Illinois farmers.

The fame of your prosperous city and the beautiful and fertile country surrounding it, dotted all over as it is with beautiful homes and model farms in the highest state of cultivation, with good buildings, good fences and good stock, all of which betoken a thrifty and intelligent people, is not unknown to us.

In selecting a location for the grand round-up or annual meeting of the Illinois Farmers' Institute, two questions are always predominant, viz: Where can we go and accomplish the most good by our presence and teachings, or where can those who desire to attend derive the greatest benefit?

In other words, shall we go to certain sections of our State as missionaries and there preach the gospel of good farming to those who are yet in darkness as to the better and improved methods, or shall we go where we can imbibe new life and inspiration from the surroundings—from the example of thrifty and prosperous farmers, with modern homes and model farms?

The selection of Princeton, Mr. Mayor, for this annual meeting of the Illinois Farmers' Institute, renders it unnecessary for me to explain which question prevailed in this instance.

We have assembled on this occasion—the thrifty, progressive farmers and their wives, from all parts of the great State of Illinois, that by contact with each other, by discussion of methods, and by the exchange of practical experiences and ideas, and under the inspiration of the thrifty, wide-awake and up-to-date influences of Princeton and its surrounding territory of beautiful and model farms and farm houses, we may have our knowledge quickened and expanded into new growth—our ideas invigorated and enlarged by new and improved methods—and our education made more complete and riper by contact with brighter and keener minds than our own.

We have come encouraged and inspired by the dignity and importance of our vocation as farmers, and proud of our calling—a calling that requires more knowledge, more recourses and more brains to insure success, and which contributes more wealth and more prosperity to the country than any or all other callings or professions combined.

We come as reading, thinking, business farmers, to lay the foundation for intelligent work in the future.

As farmers of Illinois we realize the fact that this is an age of progression, an age of invention, of organization, of education and better business methods, and above all of expansion—expansion of ideas and growth in knowledge, which is so essential to our success as farmers and to our welfare and happiness.

We are not here to organize a new political party or to pass resolutions of censure or otherwise in regard to the conduct of State or national affairs.

We are not here in the interest of any political party—any religious denomination, any combination, corporation or faction whatever.

Neither are we here with any financial or other schemes to promulgate—any fancied wrongs or grievances to be righted, axes to grind, hobbies to ride or tales of woe to be sung.

But we are here as representative men and farmers—representatives of that calling or business which creates something, which brings into being or existence that which has had no prior existence, and consequently the representatives of that business which is the foundation of all wealth and all prosperity.

We are here to perfect ourselves as far as possible in the business of agriculture or farming, believing that we, alone, are responsible for the result, and that success or failure depends more upon our skill and management as farmers than upon any legislative enactment.

We believe that God helps those who help themselves. We believe in the farm, and ever and always in doing that which builds up and improves, and above all things we believe in that business which is the foundation of all industries, all wealth and all prosperity.

The time has come when the man who is worthless, and of no account for anything else, can no longer make a successful farmer.

The farmer of today must be an allround, well informed man, possessed of good, common sense, with confidence in himself, and a pride and respect for his business.

He should have some knowledge of law, of medicine, of chemistry, of politics, of commerce and of trades and professions generally.

He must know the principles which underlie the foundation of agriculture and know how, when and where to apply his efforts and why it is necessary.

He must understand the nature of the soil he is working, the best crops to grow and how to grow them.

He must carefully guard the fertility of the soil and appreciate the value of manure and the absolute necessity of saving and applying it.

He must understand the necessity of a thorough preparation of the soil and the advantage of frequent cultivations.

He must understand that "like begets like," and that good stock can only be raised from good stock.

He must be systematic, thorough, thrifty and economical, and above all things he must be ever and always a student and study his business.

There are none so wise but they can be benefited by it.

We are like the soil of our farms from which successive crops have been removed year after year. We need renewing, enriching, fertilizing and the benefit of thorough cultivation.

The richer the soil, the greater the crop. The more intelligent and better educated the man, the better farmer he will be.

The farming industry in Illinois is as yet an undeveloped one, and it is the province of the Farmers' Institute to aid in its development. Such in brief is its aim and object.

The average farm crop and the average stock feeding operation is not a paying one, or if so, paying only in a slight degree what they should or would pay under more advanced methods.

In the addition and increase that can be made to the average crops of Illinois, there is untold wealth—more wealth than in all the gold and silver mines of the country.

A proper preparation of the seed bed, and a thorough and timely cultivation will add many bushels to the yield of every acre, and in the aggregate many million bushels to the credit of the State.

The feeding of the grain to stock of a poor and inferior quality has entailed a loss that can not be estimated.

The failure to grow clover—to save and utilize the manure, and in general to adopt, up to date and sensible methods, has resulted in a loss that can not be computed.

In the increase that yet remains to be developed and added to the present average crops of Illinois, in the greater results to be derived from the use of improved and better stock, there is more money, more millions than in all the gold of the Klondike.

It is to develop the far richer gold mines in the Illinois farms that we have left our homes at this time and gathered at Princeton.

We hope to lay the foundation for intelligent work in the future—work that will result in higher fertilization, more thorough preparation of the soil—better tillage, larger crops, finer stock, more money and greater success in every way, and in doing this we expect to develop an army of bright young farmers—reading, thinking, talking and experimenting farmers.

Such in brief is the type of farmers the Illinois Farmers' Institute is striving to mould and fashion by its teachings.

Again in behalf of the Illinois Farmers' Institute, allow me to express to you, Mr. Mayor, and to the citizens of Princeton, our very high appreciation of your most cordial reception and generous welcome.

The President: I have asked Mr. Fred H. Rankin to read the President's address, as he has a younger pair of eyes.

Mr. Rankin read President Amos F. Moore's address, which is as follows:

To the Illinois Farmers' Institute:

It is a great pleasure to meet this large and intelligent gathering of farmers and their wives in this, the fourth, annual session of the Illinois Farmers' Institute.

Your attendance in such numbers from all sections of the State attests your deep and growing interest in an organization having for its prime object the assistance and encouragement of useful education among farmers and the development of the agricultural resources of the State.

You could not have been convened for a more commendable purpose, and the furtherance of the principles of your platform will entitle you to the lasting gratitude of this generation and the highest esteem of your successors. This is no ordinary gathering, and the influence for good of this meeting will extend down the ages. The prominence of the speakers, and their recognized ability in presenting papers on current topics of absorbing interest to all in attendance, ensure a great addition to the store of useful knowledge and a most enjoyable session.

There is no limit to the measure of good fellowship that may be enjoyed on occasions of this character, and it is hoped and believed that the pleasant acquaintances formed at this meeting will extend throughout our lives and make the Princeton meeting one long to be held in pleasant remembrance for the delightful hospitality of its citizens, the meeting of old friends, and the formation of many new ones.

The past year has been a remarkable period in the history of this country, and the same may be said of the Illinois Farmers' Institute. The splendid victories won at Manila and Cuba by the gallant hosts fighting under the stars and stripes in the cause of humanity have inspired the nation to a more earnest effort in every line of endeavor that tends to advance our people in lofty patriotism, a higher standard of intelligence, and the attainment of that measure of christian citizenship in keeping with the spirit of a great nation that cherishes the sentiment of the fatherhood of God and the brotherhood of man.

The splendid army of strong, brainy farmers, with their lovely, intelligent and resourceful wives and daughters, has, during the past year, won great victories under the banner of the Illinois Farmers' Institute; which, since last we met in annual session, has been planted and ably sustained in nearly one-third of the counties of the State.

The magnificent campaign which you have so successfully conducted the past season in the 102 counties in Illinois will conduce greatly to the intelligence, happiness, spiritual growth and material prosperity of nearly five millions of the most enterprising and patriotic people to be found on the face of the globe.

It hardly seems possible that it is less than two years since the first State appropriation became available for the work of the Illinois Farmers' Institute, and that in such a brief period more than one-third of the County Institutes had been organized, and new life and enthusiasm had been imparted to such a surprising degree to the remaining Institutes, a large proportion of which had heretofore attained to a small measure of their present usefulness.

The organization of the Farmers' Institute work of the State has been largely completed during the past year. The plan of operation so successfully employed has been systematized and the forces have been united, vitalized and made aggressive in a marked degree.

This grand work has been accomplished by the earnest and hearty co-operation of the officers and directors of the State Institute with managers of County Institutes, all of whom have been actuated by the commendable desire to accomplish the greatest good to the greatest number.

In order to more successfully carry out the spirit of the law, which provides that the State Institute "assist and encourage useful education among farmers," an earnest effort has been made to create a widespread interest in the State Agricultural College at Champaign.

The State and County Institutes have quite generally discussed the necessity for the early construction of a suitable building for the college of agriculture, and it is a great pleasure to be assured that the farmers of the State are very emphatic in their demands for a first-class plant for this much needed institution.

But the least important part of the work of the State Institute during the past year has been the promotion of the organization of home making or County Domestic Science Associations, composed of the wives and daughters of farmers.

The organization of the Illinois Association of Domestic Science was completed in February, 1898, at the Champaign meeting of the Illinois Farmers' Institute, and during the past year the demand for such an association has been amply demonstrated in the formation of county societies in all sections of the State.

It is very gratifying to be able to report that there has been no lack of enthusiasm in the general effort that has been put forth during the past year by the officers of the State and various county organizations to place the Farmers' Institute work in Illinois upon the highest plain of usefulness; and in reviewing the results there is abundant cause for congratulating all interested.

The program prepared for this meeting is an improvement on the excellent order of exercises prepared for previous annual meetings.

The ladies and gentlemen who have so kindly accepted our invitation to address you are authorities on the subjects which they will present and will receive your courteous attention.

The citizens of Princeton have spared no pains to complete arrangements for this meeting, and you will receive that cordial reception and enjoy the gracious hospitality characteristic of the cultured people of this beautiful city.

My heart is full of gratitude to my associate members of the Illinois Farmers' Institute who have labored so earnestly, and they are entitled to your highest esteem for the success of the work accomplished, and to the Secretary who has so ably and acceptably discharged the duties of his office. I join with you and the Institute workers of the State in extending a full measure of commendation and thankfulness.

In conclusion, I desire to impress upon each Institute worker in Illinois that we have only just entered upon a campaign that, if prosecuted with energy, wisdom and persistence, will add much to the intelligence, happiness and prosperity of the rural population of this State.

The President: The next on the program is the report of the State Superintendent of Institutes, Mr. Charles F. Mills.

Mr. Mills read as follows:

Mr. President, Ladies and Gentlemen:—It is a very great pleasure for me to meet so many of the delegates. It seems very fitting that we should meet right here at Princeton, and I am surprised that we did not think of the appropriateness of it before. Princeton is the birthplace of the Farmers' Institute of Illinois, so far as official organization of that Institute is concerned, and our friend, Simon Elliott, was the President of the first Board of Agriculture in the State of Illinois. In those days it was very difficult to find any one who would extend an invitation to a meeting of this character.

They had a very delightful and successful meeting at Princeton, and so much encouraged were the State Board of Agriculture, as the result of that meeting, that they extended it all over the State that year. I see before me a great many ladies and gentlemen that I have had the pleasure of corresponding with in reference to this work, and I think, if I could only emphasize the great results of this year, that would be all that is necessary from your Secretary.

I want to add all that I possibly can to the congratulations that our President has extended to every one present for the magnificent work done the past year. It has certainly been a grand effort you have made and success has been far beyond our expectations. At this time we have an association, a Farmers' Institute, in every county of Illinois, and in a great many of the townships of the counties. As most of the county delegates are here to make able reports this forenoon, I shall confine my remarks to what I have on paper and then give way to the ladies and gentlemen that are here.

The success attending the Farmers' Institute work in Illinois since the last annual meeting held at Champaign exceeds the expectation of the most sanguine promoters of this important educational agency.

New organizations have been completed during the past twelve months in one-fourth of the counties of the State. In as many more counties new life and energy have been infused into organizations that only needed suggestion and encouragement to ensure good results.

The number of county Institutes whose officers have made ample and timely arrangements for meeting has largely increased during the past year. The officers of County Farmers' Institutes, with scarcely an exception, feel the great responsibility of their positions and manifest an earnest desire to discharge their duties in such a creditable manner as to meet the most exacting demands of a deeply interested constituency.

The Farmers' Institute is a welcome guest, and no longer needs an introduction to the farmer or townsman residing in any county in Illinois. It is a popular organization with the business and professional man and a prime favorite with every progressive farmer.

Its annual meetings are anticipated with pleasure by the resident of town and country as occasions for the discussion of practical topics of current interest to the housewife, the farmer, the teacher, as well as the business and professional man. It is well known by the representatives of the classes named that their respective revenues are largely influenced by the prosperity of the tiller of the soil, and that they can have no better friend than the farmer.

The educational and social features of the Farmers' Institute have received more attention the past season than heretofore, and, as might be expected, have added no less interest to such meetings than the discussion of the best methods of growing crops and increasing bank balances.

PRESS.

The press of Illinois has not been slow in manifesting its high appreciation of the Farmers' Institute as an important educational agency, and no better evidence can be presented of the general interest in Institute meetings than the large space given on the front page of the best papers in the State for the proceedings thereof.

It is not infrequent that the papers and discussions of a Farmers' Institute are presented in full in the papers published in the county in which the meeting is held.

The advantages of such publications are so apparent that officers of County Institutes will need no encouragement to heartily coöperate with the editors of their respective counties in making valuable contribution of time and funds necessary to prepare copy and widely distribute a full report of the annual meeting, which should be placed in the hands of the largest possible number of farmers.

A full measure of our thanks is due the press of the State for the valuable service they have thus rendered the Farmer's Institute organizations of Illinois.

CONGRESSIONAL FARMERS' INSTITUTE.

The most effective agency adopted the past season by the Illinois Farmers' Institute for the advancement of the work has been the adoption of the plan of holding a Congressional Institute or round-up meeting annually in each district under the auspices of a County Institute with its perfected organization.

The conference of delegates representing each County Institute in the district is held early in the season and at this preliminary meeting a convenient circuit of dates and places for the district and county meetings is agreed upon and outside speakers selected for the entire circuit.

The active Institute workers in each district are thus brought together for consultation and coöperation in an early campaign, which leads to much valuable conference and helpful effort during the season.

Each County Institute is generally expected to have a representative present a paper at the Congressional district meeting and otherwise assist in promoting the general interest in the proceedings.

The Congressional Institute was for years the only meeting of this character held in Illinois, and such district meetings were generally held at the most accessible railroad center in the district. Under the regime of Congressional district meetings, the farmers of many sections of the State never enjoyed the privilege of attending a Farmers' Institute until the custom of holding county meetings was inaugurated.

Congressional District Farmers' Institute meetings have been held the past season at the places and on the following dates, viz.:

3rd district, November 23, 24, Chicago.

8th district, January 18, 19, 1899, Yorkville.

9th district, February 3, 4, 1899, Dixon.

10th district, February 8, 9, 10, 1899, Moline.

11th district, January 26, 27, 1899, Streator.

12th district, February 15, 16, 1899, Gilman.

13th district, January 19, 20, 1899, Arcola.

14th district, January 11, 12, 13, 1899, Magnolia.

15th district, December 1, 2, 1898, Oquawka.

16th district, December 20, 21, 1898, Carlinville.

17th district, December 1, 2, 3, 1898, Lincoln.

18th district, ———.

19th district, January 18. 19, 1899, Paris.

20th district, November 17, 18, 1898, Mt. Vernon.

21st district, December 14, 15, 16, 1898, Belleville.

22d district, November 15, 16, 1898, Carbondale.

COUNTY INSTITUTE MEETINGS.

The State Institute is composed of a chain of 102 links, each of which should represent a live, wide-awake, up-to-date County Farmers' Institute. It has been the earnest endeavor of the directors of the State Institute to make each link in this chain bright with the best thought of the progressive farmers of the several counties, beautiful with the purest and most ennobling influence of the farmer's wives, and strong with the best endeavor to provide the youth of the farm with advantages for attaining the highest standard in all that relates to their mental, moral and physical well-being.

The farmers of this premier agricultural State are to be congratulated that the auspicious period has arrived when effective Farmers' Institutes have been organized in each of the 102 counties composing this the most productive commonwealth of the Union.

The broad and deep foundation thus laid, makes it possible for the farmers of each county to place upon it a structure of untold grace and utility that will widely reflect its best thought and experience in all matters relating to the beauty of home life, the culture and education of parent and child, the successful management of the farm, and the attainment to that high and useful position in public affairs that the educated and successful farmer will find awaiting him in each community, county, State and the councils of the nation.

The reported attendance at County Farmers' institute meetings held last season numbered over fifty thousand. There is every reason to expect that more than double that number will attend the meetings of the current institute season.

The programs of County Institutes and the published proceedings of the meetings held this season indicate that, as a rule, thorough preparation has been made for each session, that speakers of a very high order of talent have been employed, that attendance has been large and that there has been no lack of interest in the papers presented and the discussions following.

The value of the time and thought expended by the directors of the several Congressional districts, and the officers of County Institutes in the planning and execution of this splendid campaign can not be computed, and the extended influence for good thus exerted by the patriotic and public spirited ladies and gentlemen who have thus faithfully and helpfully served the agricultural classes of Illinois, entitle them to a full measure of your gratitude.

The well-known ambition of the officers of County Institutes to improve upon all past records, will prompt them in the near future to extend the work by completing and sustaining a Township Farmers' Institute in each township or precinct in Illinois.

TOWNSHIP FARMERS' INSTITUTE.

The sensation of the year in Farmers' Institute circles has been the rapid and wide-spread interest manifested in the holding of township institutes. The plan of holding township Farmers' Institutes received much attention in Whiteside county in 1897, and the good results following encouraged the officers of other County Institutes to establish such meetings.

The officers of a number of the most successful County Institutes in the State have not been slow to see the great advantage that would accrue to the county organizations by the holding of institute meetings in each township and have actively entered upon the work of thus extending the usefulness of their respective associations.

In the near future the County Institute that is not actively engaged in the holding of township meetings will be the exception.

In Sullivan township, Ford county, five annual institute meetings have been held, and the program of the three days session will compare most favorably with the announcements of many County Institutes.

There are so many advantages to the farmer in each neighborhood in the holding of frequent township institute meetings for the discussion of the growing and marketing of crops best suited to local conditions, the consideration of educational and social matters that all interested in promoting the happiness and prosperity of our farmers will esteem it a privilege to aid in the township institute work.

LADIES' WORK IN INSTITUTE.

There has been no more effective or aggressive force in the Farmers' Institute work of Illinois, than the wives and daughters of our farmers.

Illinois was the first state to give prominence to Woman's work in meetings of Farmers' Institutes, and the wisdom of such procedure has never been questioned. At the last annual meeting of the Illinois Farmers' Institute held at Champaign, the ladies in attendance organized the Illinois Association of Domestic Science, having for its object the development of a greater interest in home making, and all that pertains thereto.

The promoters of this good work intend to make the Domestic Science societies serve the same purpose to the housekeeper, that the Farmers Institute does to the farmer; a means of gaining knowledge and creating an interest and enthusiasm in the work of housekeeping.

The officers of Farmers' Institutes in a number of counties have taken up this important matter with much spirit and enthusiasm, and have assisted the ladies in the organization of such home making clubs; and the officers of all the other County Institutes, when they realize the advantages that will accrue to the County Institutes therefrom, will promptly aid in completing such an association. In counties where the farmers' wives and daughters have organized such home making societies, the first afternoon session of the County Farmers' Institute has been placed in the hands of the officers of said societies, much to the advantage of the institute in the way of greatly increased attendance and interest in all the sessions.

The directors of the Illinois Farmers' Institute realize the great possibilities for good in the further development of the work contemplated by the act of the General Assembly creating the same and each director requests your counsel and hearty co operation in the earnest effort that is being made to have each county and township institute in the State attain to much higher standard of usefulness.

The president called for the reports of the districts.

Mr. Coolidge: I move, Mr. Chairman, that be passed for the present and that reports of different county institutes be heard first.

Mr. Mills: I second the motion.

The President: It is carried and the Secretary will call the roll of counties.

As the Secretary called the roll of counties the following responded:

Mr. Mills: Adams County:—

Mr. Dean: I am sorry to say our county has no delegate. We have to say briefly that we have been successful this year, and more especially so from this fact, ladies and gentlemen, we have taken some of the pleasures away from it and gone more into business. However, we use our own local talent, and also import some talent. When I say we have taken a good deal of pleasure away, I mean that we have some music, some recitations, but we get down more to business. I wish to illustrate something I never heard before and which originated in our own county. I have heard the best men talk about corn, and I thought I knew something about corn myself, and our neighbors all think we know how to raise corn, but an old farmer who, when he was a boy, studied natural philosophy, spoke of the propriety of getting the ground in order. He went on and illustrated and explained to us what he meant. I never heard that much philosophy in that way before.

We have made wonderful improvements while our institute has been in progress. We commence in the county and go to all the towns and make the circuit. They all have improved. You will observe the fences have been fixed up and the homes have been fixed up and the well curbs have been repaired and all these things have been done in the twenty-two years we have been running Farmers' Institutes.

Bond County:—

Mr. Thacker: Gentlemen of the Institute:—Bond County Institute is doing a progressive work. We are holding regular monthly meetings, in which there are usually two persons assigned subjects. After each subject, it is discussed by other members of the institute. In addition to our regular monthly meetings, we hold annual meetings, and there are others present to-day who can testify as to whether we are making a success out of our county annual institute or not. We believe in proving our faith by our works.

At each annual institute we have a display of what we have accomplished, and last year, notwithstanding the inclemency of the weather, not only on the first day, but the last day, the attendance was somewhere about three or four thousand, and the exhibits could not be surpassed, so far as they went, at the State Fair, and we have been keeping this up now for the past four years, and expect to have an annual institute this fall in connection with our regular monthly institute.

Bureau County:—

L. R. Bryant: We have a good lively institute and are doing a good work and progressing steadily.

Carroll County:—

Mr. A. B. Hostetter: Mr. President, Ladies and Gentlemen:—I had not expected to report for Carroll county. The Hon. D. C. Bussell was to make the report. He is the farmers' representative in the present House.

I will say this in regard to Carroll county. We have been holding two annual sessions of late. Our regular Farmers' Institute we hold to regular farm topics. We have also an educational institute in connection with the teachers of the county. We find that the joint institute with the teachers has been of great advantage to us in creating an interest among the teachers in farm topics. We have held meetings of this character for four years, and I certainly recommend to those who believe in interesting the schools in agriculture that they hold a joint institute with the teachers of the county, and they will get very good results.

Our institute this year, so far as attendance was concerned, was not as large as usual as we met in a railroad town. We have changed the location of our institute every year so as to give every man in the county an opportunity to have an institute near his home. We met in Savanna, and, lacking numbers, it was probably as good an institute as we ever had, as Professor Holden was with us to give us practical instruction on corn growing. We had Mr. Moore, the President of the Institute, and Vice President Willmarth, also, Mrs. Dunlap gave us a good paper on "Domestic Science," and organized a Domestic Science Club among the ladies of Savanna.

Christian County:—

Mr. Henry: I did not expect to make a report. I will say as to our county that I have been concerned with the work there for a number of years. We have had nine or ten institutes. I think we are progressing about as well as the average. We have had a solid mass of conservatism to fight and the interest increases very slowly. It is customary on occasions of this kind to make the best possible feature of a report, and I do not believe it is right. If there is anything wrong one should tell it. Our great difficulty has been in enlisting young men in the work. The men who believe in our institute and work it are men past fifty, and we need the young men full of ambition and energy.

I trust the other counties can make a better report than I.

Clark County:—

Mr. Adams: I am a self constituted delegate to this convention. We held our eighth annual convention at Marshall, the 8th, 9th, and 10th of January, and to say that it was a success is expressing it mildly. Our institute, two years ago, received fresh impetus by having Professor Holden, of Champaign, with us. The only difficulty staring at us now is in finding a place large enough to hold the people. We think at several of our sessions we had seven hundred. One of the drawing features was our musical program and the giving of one day to the ladies, who have organized a ladies' auxiliary. We have also the assistance of our County Superintendent of Schools.

We gave an exhibit of farm products, which was very good. Professor Holden was also with us. Next year we expect to devote one session to the educational feature. We also have a woman's auxiliary, which has proven a great success.

Cook County:—

Mr. Periam: Ladies and Gentlemen:—I suppose you all know that in my end of the State, where the great city of Chicago is located, or rather, I should say there is not much to the county except the city of Chicago, we have had three institutes. They were all good, and the last excellent, and finished last Saturday. We have to deal with matters quite different in Cook county, and I will say, by the way, that we are not holding our institutes in the city proper. We are holding the meetings in country towns, and never yet have held the second institute in the same town.

One day we devote to education, generally in the evening. The educational session this year was most excellent in the quality of the papers, the music that was furnished and the other exercises connected with it.

We can not get up large audiences in Cook county because the country towns are, in a way, suburban to the city of Chicago. We generally can not get more than five hundred people, but I will say that twice during our last session the house was filled to overflowing. I report progress in Cook county.

DeWitt County:—

Mr. Hartsock: DeWitt county has been holding institutes for the last twelve or fifteen years, without missing one year, I think. It is the effort of the officers to make each institute a little better than the previous one, and I believe they have been successful.

Our last meeting was held on the 11th, 12th and 13th of January, 1899. We had the director of our congressional district with us, we had Mr. Rankin and we had that grand woman on Domestic Science, Mrs. Kedsie, and they were all of great benefit to us. When we elect our officers we elect a director from each township in the county. We have thirteen directors and our regular institute officers. We hold only one institute. About two months before we have a meeting of the officers and directors, and then assignments of the different subjects are made. They go to work at their respective parts and have everything ready at the time of the meeting.

Our great trouble has been in obtaining a commodious building to hold our institutes in. We have a seating capacity of only about eight hundred and in the afternoon sessions the seating capacity has not been sufficient. The day sessions are devoted to papers on grains and stock raising, etc., and the evening sessions, of which we always hold two, we devote to literature and education.

For the speakers at our next institute we have decided to depend upon the ladies and gentlemen of the county, and thus get up a little more interest among our home speakers and see what the result will be.

Edgar County:—

Mr. Hollingsworth: I am not a regular delegate, but I want something said, for we have a great deal to tell. This year we held our fourth annual meeting. The delegates came from other counties. In our county we always try to find people who can speak on the different topics. We first find out

what we want on the program, and then go around and hunt up the people that know from experience about the different subjects. Sometimes we have great difficulty in getting the speakers to speak, but finally we get them and we always have good papers when we get them to overcome their embarrassment.

Now, some people want to know how we get a good attendance. Just put up a good program, the newspapers will give you all the space you want.

Edwards County:—

Mr. Fewks: We have had an institute in Edwards county about three years and we are in the fight to stay. We do not have crowds there but what we have buildings for, and I would like to have some of the delegates explain whether their houses are crowded with farmers or not. I think there is a difference between an entertainment and a Farmers' Institute. Down in Edwards county we are to hold a genuine Farmers' Institute every year and we think by patience and practice we will succeed.

Effingham County:—

Mr. ———: In Effingham county the institute has almost died. And it was with considerable difficulty that the board of managers resurrected it. But we succeeded to the extent that we had our institute at last, and our friend here, Brother Shank, may testify to the fact that it was a pretty tolerable institute for Egypt.

We have also organized the Home Domestic Science Association in our county. We have planned for three or four township meetings, the programs of which are being constructed by the committee. We propose to awaken interest in building up the agricultural interest in that county. The principal topic of our last meeting was in regard to bringing up and removing the worn out soil on very many of the farms of our county. We hope to enlist the interest of not only the farmers of Effingham county, but also the State Institute to help us in this particular.

Ford County:—

Mr. McCrackin: Mr. Beagley, I believe, will speak to you a little later about what the secretary told you of the banner township, Sullivan, and he asked me to make a few general remarks about our county. Our little county of Ford is the pan-handle county; as it appears on the map it looks like a skillet with a long handle, and down in the skillet end we have the township of Sullivan which entitles us to much more consideration than your counties that have more territory.

Now, if I had known that I was to make a report here, I would not have come. I would have been like the drunken man in the stage coach. While the stage was going up an incline, and the rear door of the coach being open, he fell out and rolled down the hill. When the driver went back to help him up, he said: "D-d-did we have a collishun?" "No, sir," answered the stage driver, "no collision." "D-d-did the stasz upset?" "No, sir," replied the driver, "the stage didn't upset; I only want to get you in again. "Why," said the man, "if I had a' known that, I w-wouldn't a' got out."

We have an institute that has been organized for several years, and we carry it on, on the traveling class plan, that is go from one town to the other. We have a part of the entertainment local and part from abroad. As the gentleman said a moment ago, it is very hard to get the ordinary farmer to speak in public. It is always hard for one to get up before an audience and try to do something that he is not accustomed to, and for that reason I think it is better to have some foreign speakers. We do not carry the entertainment part of our program to excess. It is very good so far as it goes, but we try to attend strictly to business.

In regard to the traveling around of this State Institute, I wish to say that the good of it is questionable. The interest here today could have been easily obtained with a district or county institute. I think this convention ought to be located at some special place.

I wish to ramble a little, because I will be obliged to leave this afternoon. I understand that immediately after this meeting they have a sugar meeting called. I am much interested in the sugar business. Please remember, if the land will not produce a cent's worth more of sugar than of corn, it will furnish employment for a great many more people. For that one reason it is worthy of a trial. It is not a party move nor a partisan move, and let us try it.

I have been on a farm twenty-one years. Twenty-five years ago this coming day of March, we went on to a farm. Think of undertaking what we undertook without knowing one thing about farming. This institute is the grandest thing in the world, for one can come here and fit himself for what he expects to do. I was obliged to blunder around for twenty-one years and then my family wanted to go to town. I don't think a farmer ought to go to town, and leave the farm, but stick to the farm and die there. The institute is certainly the farmers' open door, and if he will pursue the institute in the same way the professions have their unions and the business men their associations, as we are sixty per cent of the population in the United States, he can have his own way.

Ford County:—

Mr. Beagley: Perhaps it is somewhat out of place to make a report of a township Farmers' Institute at this time, but I would like to say, that six years ago the Sullivan Township Farmers' Institute was organized with a membership of seven and now we have one hundred and five, and each pays a fee of fifty cents, which gives us ample cash to carry on our meetings. This year we held a three days' session. Our club has now arrived almost to the dignity of a County Institute. In fact our Ford County Institute was organized at one of the meetings of our Sullivan Township Club. There are many here from our township who will endorse what I say. It is the banner township of Illinois.

I realize the time is short, and that there are other speakers, but I would like to add, that we conduct our club meetings along different lines from the County Institute meetings. We have only one topic and one leading or prominent speaker at each session and then the topic is thoroughly discussed. We have no music, or entertainment, but just get down to business and thoroughly discuss every topic on the program. In the evening we have a purely educational and literary program. We have been eminently successful, as many here will say.

Franklin County:—

Mr. Hutchinson: As I have the honor to represent Franklin county, in Southern Illinois, I wish to say that I was a charter member of a Farmers' Institute, or a similar organization in our county about twenty-five years ago, under the name of a Grange, and as long as we kept it strictly in the interests of farmers we derived much good and many benefits through it, but, unfortunately, in the course of time, some of its members got more interested in politics than they were in agriculture, horticulture, or any other branch of farming, which proved to be the death-knell of the organization, not only in our county, but in a majority of the counties in Southern Illinois,—as from that time the organization began to wane, and in about twelve months after, it died a natural death, was quietly buried, and the inscription on its tomb was, "It died of politics." About ten years ago we had a similar organization in Southern Illinois, known as the Farmers' Mutual Benefit Association, which, at one time looked as if it was going to take the county by storm. But, alas: In a few years, it too, quietly passed away, of the same disease as its former sister, and its epitaph is the same "Died of politics."

Now, brother farmers, I mention these facts as a warning. Shun politics in your institutes as you would the most poisonous viper that crawls, for my experience is that politics will kill any farmers' organization that will dabble in it. Besides, Mr. President, the history of these two former organizations has been detrimental to our institute work in Southern Illinois, as our farmers looked upon every move in the way of a farmers' organization as being some kind of a political machine.

In order to show you how suspicious they were, I will say, that after the General Assembly had passed the law creating the Illinois Farmers' Institute, a few of us in our county who felt an interest in the cause, called a meeting in the court house in our town for the purpose of organizing a County Institute. Said meeting was thoroughly published throughout the county, and on the day of the meeting, though our streets were thronged with farmers, we were compelled to go out and give special invitations in order to get a sufficient number to organize with. But we finally organized, set a time to hold our institute, had a good program, spent about forty dollars for advertising, posters, etc., sent for friend Beal and other gentlemen from Waterloo (I have forgotten their names), to come and assist us. The time arrived to hold our institute. The weather was fine, and behold! On the first day of our institute we did not have farmers enough present to make a respectable corporal guard. However, through curiosity, quite a number of the town folk came in. We did the best we could under the circumstances. In fact, we had a good institute. But while the harvest was ripe, the reapers were few and the town folk got the benefit of our first institute. But since then things have changed, although it has required both time and effort to convince our farmers that institutes have nothing to do with politics. But we have finally done so. They are now all in line with us. We are now organizing township institutes throughout the county, and we expect, in the near future, to hold institutes in a majority of the schoolhouses in the county, and as a result, at our next county institute we expect to have an old-fashioned Methodist love feast. Now, if any of you think you would like to enjoy it with us, you are invited to come down. We grow everything in Franklin county that is good to eat. You will find the latchstring out at every door, for a more hospitable mass of people can not be found in the State of Illinois, although we are called Egyptians.

Fulton County:—

Mr. ———: While it was said a Farmers' Institute could not be organized or maintained if organized; but Vice-President Wilmarth said it could be done, and he came down last July and organized us and the 10th and 11th of last month we held our first Farmers' Institute in Fulton county. We were organized in July and a few of us took hold and did a great deal of work, and as a result we got up a good program. The first meeting was not attended as it should have been nor the interest was not what it should have been. We had Prof. Holden with us one evening, and the attendance at that time was limited only by the seating capacity of the hall and an interest that was limited by the patience of the chairman.

On the afternoon of the second day, Mrs. Dunlap closed the session with her matchless address on Domestic Science, and Mrs. Dunlap said that that was the best meeting and the most interest manifested of any meeting she had ever addressed, and we felt very much encouraged. A great many people who never thought of institutes before are helping us right along.

Henry County:—

Mr. Frank Melvin: We had an institute this year on the 24th and 25th of January. It was better attended than any institute we ever had in the county. It showed a growing interest and also that practical farmers are becoming interested. We induced them to get up and tell us what they knew. The attendance, as I said, was very large. The township organization with us has become a failure. I do not know of anything, Mr. Chairman, of special note, but our institute shows advance in every direction and increased activity.

Jefferson County:—

Mr. Pervier: Jefferson county has landed in a peculiar condition concerning the County Institute. We this year had our fifth annual institute, every meeting of which was a grand success, and the institute was beneficial to every one attending. We began in our county a great many years ago and have educated the people to express themselves in public and we have now

reached the time when it is impossible to hold an institute in our county for the great quantity of material we have of that kind. We have not a township in our county but can be a credit to any county in the State.

When we make up a program we try not to slight anybody and thus we have a great deal of trouble. We believe there that we must know something besides how to grow corn and we have to have people there of various minds before they can succeed. One must know how to grow fruit and farm products of various kinds. Consequently our program is of wider dimensions because of the varied interests. If we undertake to have a display, we have a large hall stored full, which it would take a person an entire day to inspect. This year we made no display at all, but we gave an institute that would be beneficial to the people of our county.

Any man to succeed in anything must have a pride in that one thing and in doing that he makes a success. We have tried to make Jefferson county second to no county. Do not look over your county for the man that has the most ability, but look over your county and see the man that has the most pride and will work the hardest. Our institute is a success and we propose to make it a success. All that is required is effort, and we are putting forth the effort and are trying to keep up with our State in this common cause.

Jo Daviess County:—

Mr. G. W. Curtis: This session seems to have developed into an experience meeting. There has been so much said that I can not add much about County Institute work. If you will permit me, I will mention an incident or two that led up to the organization of a Farmers' Institute in Jo Daviess county. Some fifteen years ago they were holding meetings every three weeks at which discussions were held on matters pertaining to the interests of its members, who were all farmers. These meetings were all for farmers—men and women—and they discussed matters common to their interest. These meetings were all held in the day time at the members' houses, and it was an unwritten code in the organization that the member at whose house the meeting was to be held should invite their friends and neighbors, and it was considered quite a compliment to be so invited. The thing went along so nicely that we were finally induced to hold an open meeting under the auspices of the Grange. This meeting was advertised and was held nine miles out on the prairie where there was not even a blacksmith shop. We held the meeting in a church. The building was filled with farmers who had come prepared to stay all day. This resulted soon in an organization of a County Farmers' Institute, and this institute has been held every year since, I believe some twelve years.

In our county we keep the institute on wheels. That is, we have never held a meeting at one place twice in succession. Any town of 2,500 inhabitants is large enough and we always find they have interest in the institute. If the hotel accommodations are not sufficient, the people are always willing to throw open their homes and invite the delegates in. We always have a local committee, an entertainment committee and a music committee. We usually open our institute the day before the first day session.

We always try to select a president for the ensuing year from the vicinity where we are going to hold our next meeting, for the reason that he is generally acquainted with every farmer in the immediate neighborhood and knows every man's peculiarity. About our secretary we are not so particular. You need a good man for that office, for the secretary is the pack horse of the whole concern. At the opening of the meeting the president generally remarks that any who wish to ask questions in the discussions may do so and remain in their seats if they do not wish to rise. Twenty-five years ago I could not second a motion to adjourn and it is sometimes pretty embarrassing for a man to get up and ask a question. For that reason we allow them to remain in their seats and after a little while they overcome their embarrassment and get up. We have an idea with us that twenty minutes is as long as a leading speaker ought to take, so as to give place to the discussion that is to follow, and we also limit that to twenty minutes. We always try to have a good natured president, a man who can govern himself, and a man who can

quickly recognize the condition of the audience. When they become restless and tired of the subject under discussion, they generally ask for music and a patriotic song. I think this covers all I have to say for our county this year.

Knox County:—

Mr. Gale: Knox county wants no time to tell of her institute but if any of you want to know how a farmers' institute should be run, come down to Galesburg next year and learn.

Macon County:—

Mr. Beagley: I do not care to take up much time. We are on the progressive movement in our county and the farmers will have to hustle to keep ahead of the city people. The business men of Decatur held a corn carnival there last October. I was not there at the time, but arrived in the city the last day when they were tearing up. I thought they had been feeding the cattle and hogs in the streets of Decatur.

We were very successful in our last meeting and certainly are moving forward.

Mr. Mills: (Secretary) I will state that the corn carnival that our friend speaks of was the most attractive exhibition in the State of Illinois. All the business men of Decatur were unanimous in their expressions that it brought more people to their city than any other entertainment. The idea originated in a paper that was read by a lady in one of the Farmers' Institutes.

Madison County:—

Mr. Dorsey: Our 1898 institute was very successful. We had a display of farm products. We have some very energetic people in Madison county, I think, and our secretary will tell us something about our township organization. It is a new thing with us and we have not been educated up to it. Thirty-five years ago there was organized the Madison County Farmers' Club, the first in the State, perhaps, and one of the prominent workers of that county is a prominent man in the state. He is Willis C. Flag. We have now organized in our county the Township Institute. One of the leading workers in that institute is a son of Mr. Flag. The Township Institute has just held its second meeting and it has been a splendid success. We feel very much encouraged in institute work in our county.

Stark County:—

Mr. ———: We held our last institute at Wyoming and had a very successful meeting. We had two bright speakers who addressed the audience. We gave premiums on farm products which brought out a very good attendance.

Mr. Hartwell: I would like to report for Lee county:

Mr. President: We had a magnificent program and a very small attendance but lots of enthusiasm bottled up. Lee county is very old in this work and something is the matter. It was not a largely attended institute, but it was like some other things, the smaller, the sweeter.

Mr. Mills: I will call Marshall county again.

Mr. ———: Marshall county held its annual institute in Winona, January 4th and 5th and we had a good institute, good program and a good deal of interest. I would like to digress a little. Perhaps a young man attending his first institute should be too modest to say what I would like to say. I came expecting to meet two or three hundred of the most progressive farmers in the State. I see a great many gray headed men. We all honor and respect the gray hairs, but where are the young men? Do they stay at home while we attend? Is it because they can not afford to come? I believe every institute in the State ought to appropriate enough out of her own fund to send one or two energetic delegates to the State institute.

Mr. Mills: I will call Shelby once more.

Mr. Boyce: Shelby county held its fifth annual institute last November on the 17th and 18th insts. Our greatest trouble is to get the farmers out, the very ones that need the education that the institute would afford to them. So last year we thought we would go abroad for our talent. We had David Ward

Wood of Champaign; and Mrs. Kedzie of Peoria, and other excellent speakers and on the last day we had an intense interest. We held the meeting in the court house and they filled the court room and the halls and the stairs so that there was not standing room. There is one thing sure, if we have Mrs. Kedzie next year we will have to encircle the town to hold the crowd.

Warren County:—

Mr. Clanahan: I do not see any other representative present and I will simply say this in regard to institute work in our county. We have institutes there five years. Our first was very interesting. Our second lacked interest from the burning of the hall in the morning, and from that on you all know what kind of an institute we have had until this year. Mr. Dean and Mr. Holden were to be with us, but, unfortunately for us, we received a letter from Mr. Dean, and a telegram from Professor Holden, the one sick and the other not well, and therefore we were reduced to our own home talent. However, we had a very interesting meeting.

Mr. ———: Mr. Chairman, I did not hear Boone county called this morning as we were unable to get here until this afternoon. I would like to report that we had in Boone county, the smallest in the state, a three days' Farmers' Institute, a fine program and a fine attendance. I think that covers all the ground therein. The people all over the county reported they wished it would be held another day, and if we had done so we would not have had room for them.

Mr. ———: Mr. Chairman, I would like to report for Kane county. I never saw a more enthusiastic meeting in my life than we had in Kane county.

Mr. Mills: I believe that ends the list.

Mr. Grout: Owing to lack of time, I move that the list of directors representing each congressional district be not called at this time and that they be requested to submit their report in writing.

Mr. Mills: I second the motion.

The President: The vote is carried.

Mr. Gale: Mr. President, I move that a Committee on Resolutions, consisting of five members, be appointed by the chair, to whom shall be referred all resolutions necessary to be offered, and who shall report to this meeting on Thursday, at the call of the president.

Motion carried.

The hour for adjournment having arrived the Institute took a recess until 1:30 o'clock p. m.

REPORT OF FIRST DISTRICT.

Chas. H. Dolton, Director 1st District.

On account of the severe illness of several months, the Hon. Charles H. Dolton, director for the First Congressional District, was unable to carry out the plans he had made for the Institute work in the First District, and therefore makes no report.

Sara Steenberg, Director 3d Dist.

F. C. Rossiter, Director 4th Dist.

James Frahe, Director 5th Dist.

REPORT OF 7TH DISTRICT.

By Charles Lindemann, Director.

Mr. Chairman:—The seventh congressional district comprises all of Lake county and the northern portion of Cook county. This district lying north of the city of Chicago is devoted entirely to general farming and dairying. Dairying is carried on most extensively in close proximity to the various railroads with so-called milk stations only a few miles apart, where thousands of cans of milk are shipped daily to Chicago. In the district farthest distant from these stations general farming is carried on.

The Cook County Farmers' Institute meetings have been held in this northern district of Cook county where dairying has been made the principal subject, and very extensive programs have always been presented. Notwithstanding the able papers read at our meeting, the farmer has taken but little interest, while no great enthusiasm has been shown, yet the attendance has been an average one. The meetings will be held regularly and it is hoped the farmers will soon awake to the idea that there is something in these meetings for him to learn and for his benefit.

In Lake county the first Farmers' Institute meeting was held January 19 and 20, 1899, with overwhelming success. It was held in the little thriving town of Grays Lake, being most centrally located, and everybody seemed alive to the situation. I firmly believe there never was held a first institute meeting in any county where the people and the entire local press paid so much attention as did the farmers of Lake county. The large hall of the Modern Woodmen was packed, with standing room all occupied. The program was full and complete with speakers, all local and of known reputation in their county, which had the desired effect of drawing a large audience.

For our next meeting the county organization promises a much larger one, with exhibits and prizes for essays to the boys and girls. In summing up the Farmers' Institute work in my district I am pleased to say that it has been a great success, such as is always sure to come, and is the reward of hard, successive labor, yet the work has but only commenced.

Respectfully,

CHARLES J. LINDEMANN.

REPORT OF 8TH DISTRICT.

Mr. Chairman:—The institute work of the eighth congressional district the past year has been very satisfactory.

Institutes were held in all the counties in the district, most of them holding three days' sessions. The interest manifested in them is something marvelous, and wherever prizes have been offered for farm products there has been sharp competition.

The eighth district is second to none in institute work, and all are looking forward to the coming meetings.

Yours respectfully,

C. D. BARTLETT.

REPORT OF 9TH DISTRICT.

Mr. Chairman:—It is a pleasure to make a report of the condition of the institute work of the several counties in my district. There has been a good Farmers' Institute held the past year in every county in the district, and full houses obtained when properly advertised. The best talent was secured for the institute meetings and up-to-date topics discussed. The needs of the State Agricultural College was taken up and discussed and passed upon favorably. The farmers and their families take great interest in these institutes.

Respectfully submitted,

AMOS F. MOORE.

REPORT OF 10TH DISTRICT.

The institute work in the tenth district is in a very prosperous condition. There has been growth both in attendance and the interest taken from year to year. This is especially true in regard to our younger farmers, who are beginning to realize that there is much in the institutes of value to them.

We have held very enthusiastic, interesting and instructive meetings in every county in the district the past winter, and the outlook for the coming season is even more promising.

Respectfully submitted,

J. H. COOLIDGE.

REPORT OF 11TH DISTRICT.

Mr. President, Ladies and Gentlemen of the Illinois Farmers' Institute:—It affords me great pleasure to be able to report all the counties within the Eleventh Congressional District duly organized with Farmers' Institutes in working order in each, viz.: Bureau, La Salle, Livingston and Woodford.

Institutes have been held in each county in this district during the present winter.

The farmers of the Eleventh District look upon the Farmers' Institute as one of the great educators of the times.

This year the institutes were all well attended, and with good programs full of interest have drawn in most cases large audiences that seemed well entertained.

The presidents and secretaries of the County Institutes of this district have put forth every effort and spared no pains or labor to make the institutes a success, which is admitted by the mass of farmers and other persons in attendance, and the only serious drawback to their good work is the lack of audience rooms large enough to accommodate the crowds that want to attend the County Institute meetings.

Believing that the high character of the papers read at the institutes held in this district will continue and the best expectations of the friends of this

G. A. Willmarth, Director 11th Dist.

work be fully attained and realized this report is respectfully submitted.

G. A. WILLMARTH.

REPORT OF 12TH DISTRICT.

No report.

REPORT OF 13TH DISTRICT.

Hon. G. A. Willmarth, President Illinois Farmers' Institute.

DEAR SIR:—I have the honor to submit the following report of the Institute work in the Thirteenth Congressional District during the winter of 1898 9:

Beginning January 10, 1899, with the McLean County Institute there was held a three days' meeting.

There was a good feeling throughout the meeting and a large attendance, as many as 2,500 persons being present at some of the sessions. One afternoon was devoted exclusively to the woman's section.

In connection with the meetings there was an exhibit of vegetables and grains, also of dairy and pantry stores, all being a very creditable display by the farmers and farmers' wives of McLean county.

On January 11, 1899, the farmers of Dewitt county commenced a three days' session of their County Institute at Clinton, with a very interesting program and a fine display from the farms of grain, vegetables, pantry stores and dairy products. With an enthusiastic audience the only drawback was want of room to accommodate the people who came to hear.

S. Noble King, Director 13th Dist.

On Jan. 12, 1899, the Ford county farmers began a two day's session of their County Institute, the meeting being held at Piper City. With good speakers, an enthusiastic audience and a fair display of the products of the farm, dairy and pantry, they had a fine meeting.

On Jan. 17, 1899, Champaign county began a three days' meeting at Sidney, with a fair display of the products of the farm.

On Jan. 18, the farmers of Piatt county began their meeting at Monticello. Owing to other engagements I was unable to be present at their meeting but understand they had a very good one, as they usually have had, this being their annual meeting.

On Jan. 19, 1899, the farmers of Douglas County began their three days' Institute at Arcola, and it was another overflow meeting, it being held with or in connection with the Congressional District Institute meeting. They had a fine program, which was well carried out, and one of the finest displays of grains, vegetables, dairy and pantry stores that I have seen.

I have the honor to be,

Very respectfully,

S. NOBLE KING,

REPORT OF 14TH DISTRICT.

Mr. Chairman:—There were held in the 14th district successful Farmers' Institutes in the following named counties: Marshall county, at Wenona; Tazewell, at Minier; Fulton, at Lewiston; Mason, at Mason City. These were of unusual interest and well attended throughout. The Congressional or round-up meeting was held at Magnolia, Putnam county, and continued in session three days. The program was largely rendered by residents of the district and a crowded house at all sessions gave inspiration to the speakers. Two of the most notable sessions being the women's session and an evening devoted to an oratorical contest, the contestants all being school children attending school in the district. Judges were appointed, and prizes were awarded to the successful contestants.

We believe this feature of encouraging the young people to take an active interest in institute meetings can not help but result in good. In developing young workers thereby increasing the benefits of the Institutes.

Oliver Wilson, Director 14th Dist.

Respectfully submitted,
OLIVER WILSON.

REPORT OF 15TH DISTRICT.

Mr. Chairman:—The Illinois County Farmers' Institute of the 15th Congressional district for the winter 1898 and 1899 opened up at Mt. Sterling, Brown county, with dates November 9th and 10th, with unfavorable weather.

Vice President G. A. Willmarth and Professor Holden were present, the former discussing agricultural education and swine breeding, and the latter illustrating corn culture, and the result of different kinds of seeds; also food adulteration. Although the weather was unfavorable the court room was one-half of the time crowded to its fullest capacity. The subject of corn, swine, sheep, horses, cattle, farmer's garden, clover, etc., were discussed to the satisfaction of all present. The exercises were interspersed with choice music and brilliant literary rehearsals.

November 11th and 12th the Adams County Institute opened up with good weather, and the same State speakers with the addition of J. B. Vandeventer, the President of Brown County Institute; there was a fine display of corn and sugar beets, etc. There was comparably about the same subjects discussed as at Mt. Sterling except the addition of the subject, "Weed Destruction," and the law pertaining thereto. Dr. Dana, of the Unitarian church of Quincy, in the evening spoke on "American Liberty" to the

G. W. Dean, Director 15th Dist.

edification of an overflowing house. Of all the grand institutes that have been held at Camp Point, this one seemed to outvie them all in numbers, interest, music and literature, and the effects of institutes can readily be seen in Adams county by its neat farming, its good stock, its good fences, lovely lawns, its beautifully painted houses and barns with their nice surroundings.

It was a bright morning on November 14th that we assembled with G. A. Willmarth and the people of Hancock county, in the court house at Carthage and discussed the usual farm topics with an appreciative audience of men only, one lady being present as a reporter. On the 15th, Professor Shammel of the Illinois Experiment Station, and L. M. Black of Adams county were recruits as speakers, the former giving a beautiful chart illustration of corn growing, and the latter giving his idea of Farmers' Institutes. The audience was almost entirely composed of farmers.

McDonough county held her institute meeting November 15, 16, the last day in connection with the Horticultural Society. The discussion was in the usual line with an exceptionally good talk on horses by Elder Houston, and a brilliant butter *vs.* butterine discussion, the audience mostly men from the farm. Fred G. Miner, the courteous young secretary, was everywhere at the same time to the great comfort of his guests.

Continuing our circuit to Schuyler county we arrived at Rushville the morning of November 17th. David Ward Wood was in waiting and delivered two of his best orations, one in the afternoon and one in the evening, the people seemed to come from "Dan to Bersheba" to hear the great orator.

On November 18 Mrs. Kedzie and Mr. Augustine put in an appearance, each of whom made two talks. Mrs. Kedzie being the greatest lady orator made an impression equal to her notoriety. Mr. Augustine maintained his

standard as authority on horticulture. The local talent was composed of wit and wisdom, the officers courteous, the literary rehearsals brilliant, the music! Well, the Hughes family orchestra "did themselves honor," both in selection and rendition of their music.

Although the audience was uncomfortably crowded they behaved themselves like kings and queens when deeply interested in matters pertaining to their welfare.

The Congressional Institute of the 15th district was held in Oquaka, Henderson county, December 12; besides a large local talent, the officers had engaged G. A. Willmarth, G. C. McClarnaghan and C. N. Dennis as helpers; the opera house was donated by the city, and the meeting was a success. The school was dismissed on the 22d, that the scholars might attend the institute, and the evening entertainment was given by the city school. We give the city credit for our reception and entertainment.

We were not able to attend the institute at Monmouth, Warren county, but we don't hesitate to say that it was a success in every particular, as they have always had good institutes with large attendance. Mr. G. C. McClarnaghan reports for them a good meeting and large attendance.

McDonough county held her second institute this year, February 7, 8, at Blandinsville; the people took an interest in it—they donated the hall, the hotels gave half rate, they advertised it and attended it, and it was a success in every respect. The domestic club united and they gave the ladies one session. Corn growing was spoken of in an entirely new light by Elder Houston; we love to attend such meetings as the one held at Blandinsville.

The Douglas Literary of Adams county, which has been in good standing for years, held two Farmers' Institute sessions during its winter and spring term which attracted attention far and wide.

By request Adams county will hold a second institute at Golden in May next, after corn planting.

The arranging of dates in the 15th district has been very advantageous: it has saved both time and expense.

With regards, I remain,

Yours very truly.

G. W. DEAN.

REPORT OF 16TH DISTRICT.

Mr. Chairman:—The Farmers' Institute work of the 16th district is in every way up to date.

Each of the eight counties of the district is permanently organized and holds its meetings annually. They have passed through all the preliminary stages of organization, and have largely overcome the prejudices entertained by some against educated farmers and Farmers' Institutes, and the annual meetings are now a source of pleasure and profit to a great many farmers and their families in all parts of the district.

These meetings are intended to improve and educate the farmer and lead him to adopt new, better and more improved methods in the cultivation of his land and in the breeding, rearing and feeding of his stock. They present opportunities for the exchange of thoughts and experiences and the acquisition of tested and reliable knowledge that otherwise might not be acquired in a life time.

The lamentable thought connected with these efforts to instruct and benefit the farmer is the fact that so few comparatively avail themselves of the advantages thus offered, and that those who need the instruction most are the last to be reached and benefited. Nevertheless good seed has been sown

A. P. Grout, Director 16th Dist.

and much good accomplished and we look for greater results in the future.

In the meantime it behooves those who have been the promoters of this great work and are now engaged in it, to work diligently and study carefully the situations, that they may be prepared to meet the demands of the times.

Some plan should be devised whereby the benefits of the Farmers' Institutes may be placed within the reach of all the farmers and be made so convenient and accessible that no one can find a reasonable excuse for not attending the meetings.

There is danger that too much "old straw" may be threshed over from year to year, and that the people will become surfeited. It should be the aim of institute managers to be on the lookout for and introduce new features, new thoughts and advanced ideas.

The institute workers of the 16th district are in line and well up to the front and propose to keep right up with the procession.

Respectfully submitted,

A. P. GROUT.

REPORT OF 17TH DISTRICT.

Mr. Charles F. Mills, Springfield, Ill., director of the 17th district, presented the following report.

Mr. President, Ladies and Gentlemen, of the Illinois Farmers' Institute:—The Farmers' Institute work in this district has been actively advanced in each of the five counties composing the same, viz: Christian, Macon, Menard, Logan and Sangamon. In each of the counties named Farmers' Institute meetings were held at the places and times noted below:

Chas. F. Mills, Director 17th Dist.

County.	Place.	Time.
Christian	Taylorville	January 26, 27, 1898.
Logan	Lincoln	December 1, 2, 3, 1898.
Macon	Deratur	January 24, 25, 1898.
Menard	Petersburg	January 17, 18, 1898.
Sangamon.....	Williamsville	October 11, 12, 13, 1898.

The Congressional District Farmers' Institute meeting was held at Lincoln, December 1, 2 and 3, 1898, under the auspices of the Logan County Farmers' Institute.

The meeting at Lincoln was largely attended, the papers were of a very high order of merit and covered a wide range of practical up to date topics of practical value to the farmer and the respective members of his family.

The exhibition of farm products, pantry stores, etc., held in connection with the Congressional Institute, was highly creditable both as to quality and variety.

The Farmers' Institute meetings in the counties of Christian, Macon, Menard and Sangamon were well attended; the papers presented were of a high order of merit and the discussion of the various topics added much to the interest and benefits to be derived from meetings of said character.

The committees having the arrangement of the programs made ample provision for the domestic science work and other lines of study of especial interest to the wives and daughters of the farmer, and the papers presented by the ladies were very entertaining and instructive.

The provision made for interesting the youth of the farm at the several meetings was ample, and there was an increased attendance of the boys and girls, much to the advantage of all engaged in this work.

The condition of the Farmers' Institute work in each county of the 17th district is highly satisfactory.

REPORT OF 18TH DISTRICT.

Mr. Chairman:—Sickness prevented my attending any institute or doing any work in my district.

Hillsboro had a good meeting considering weather, and the court house was filled. Those attending came to learn, and the interest shown was encouraging. I am pleased to note so many young men and a growing disposition to take part in debates.

Bond county I did not hear from only through papers. Their report was good for attendance and interest. Madison met at Edwardsville; soldiers' reunion, street fair, etc. I am reliably informed the noise and outside attractions materially interfered with the success of institute.

As you are aware, I did not attend State Fair or State Institute meeting, which I regret for my own loss, which I assure you was unavoidable.

A. A. K. SAWYER.

REPORT OF 19TH DISTRICT.

Mr. President, Ladies and Gentlemen:—Our work in the 19th district the past year has been very pleasant and successful. An institute was held in every county in our district and much enthusiasm was shown among our farmers.

The congressional meeting was held January 17th, 18th and 19th in the city of Paris, Edgar county. We held a three days' session, and delegates from other counties were loud in their praise of this meeting. I think it a wise plan to hold these district meetings as the representatives of the different counties, then meet together and exchange ideas as to the work to be done in each county. With one exception, that of Coles county, we followed the circuit plan of holding our institutes, and found that by holding three institutes each week the work was better and the expense was less. Besides, it was much more pleasant for the instructors who were to attend in the different counties. As the work of the Farmers' Institute progresses no doubt many changes may be made to advance the interest in each district and county. The results of its teachings are becoming apparent in our district. Many

D. H. Shank, Director 19th Dist.

new phases of farm life are shown to the people.

The young men and women are giving attention to this work and stand ready to adopt any new ideas for the betterment of farm and home.

The 19th district is in line and we feel that much good will be accomplished not only in our district, but all over our great State.

Respectfully submitted,

D. H. SHANK.

REPORT OF 20TH DISTRICT.

Mr. Chairman:—Institutes were held in every county of the district except Gallatin which, owing to the misfortune which happened to the city of Shawneetown by the flood when the levee broke on the — day of March, 1898, so many people and their friends suffered loss of life and property and others moved away that the institute was not held on the date named. But we expect to hold one later, or sometime in March, 1899. The institute season opened with the County of Franklin Nov. 15-16, '98, and continued two institutes a week till Dec. 16-17. All the counties held successful meetings, more so than the year before. Greater interest was taken, and the speakers were more prompt, and also encouraged by the good attendance. Clay county, Hamilton county and Franklin county deserve special mention. All held successful exhibits in connection with their institutes. Hamilton county holds quarterly institutes in the different parts of the county, and Jefferson county is arranging to hold institutes in the four corners of the county. Franklin county will also hold Township Institutes.

L. N. Beal, Director of 20th Dist.

We are trying to arrange four townships to each institute. There are sixteen townships in the county. Franklin and Wayne counties are also arranging to hold meetings in different parts of the county, all of which adds to develop an interest in the annual County Institute.

The tendency in the southern part of the State is to hold the County Institutes earlier in the fall, and I think most of them this coming season will be in the month of October and November, 1899, and I predict a successful meeting in all the southern counties, for, as the people see the good tendency of the institute they have become interested and encouraged, which has its influence on others. I can not see anything but success ahead for the Farmers' Institute, and anyone who wants to see can see good as the result of the institutes where they have been held. I believe the institute is the leaven which will ere long leaven the whole leaven—not hid—but where we can all see the good that is being done.

L. N. BEAL.

REPORT OF 21ST DISTRICT.

Mr. Chairman:—This district comprises the seven counties of Perry, Washington, Marion, Clinton, St. Clair, Monroe and Randolph, and in each of the counties except Marion, an institute has been held during the past winter.

The dates of the various counties were arranged so that the last day of one county should be the first day of another, in this manner permitting speakers from a distance to attend several institutes consecutively.

Some comparatively new features were introduced, such as having hogs of the different breeds at the meeting and having an expert to score them before the farmers; the same also with a dairy cow and a beef cow, showing where the animals on exhibition were particularly strong or weak. The display of farm products was only made in Randolph county, but some of the other counties expect to have a display next year.

In Washington and Clinton counties, this was their second time for holding an institute and the interest has grown greatly during the past year, and the farmers are becoming quite enthusiastic. Monroe county held her first institute this year, with a very fair attendance, and exceedingly bright prospects for the future. In both Randolph and Perry counties the attendance was good, there being

Walter R. Kimzey, Director 21st Dist.

more ladies out at the former, and as the farmers learn more the true aim of the institute, their interest in it increases. The congressional round-up was held in connection with the St. Clair County Institute, and both the farmers and their wives of that county, as well as the citizens of Belleville, did all in their power to make the meeting a success. Delegates from several of the other counties in the district were present, and the general attendance at several of the sessions was fully five hundred.

To assist in awakening a greater interest throughout the entire county, most of the counties for the coming year have appointed one vice president for each congressional township whose special duty shall be to distribute programs in his township, post advertising matter, and personally to see as many farmers as possible and urge the attendance of themselves and wives.

WALTER R. KIMZEY.

REPORT OF 22D DISTRICT.

Mr. Chairman:—By order of the board of directors I attended the 22d District and Jackson County Farmers' Institute, at Carbondale Nov. 15-16, 1898.

The meeting was a success, especially when I say this was the first one in the county and district, as the district was organized in the summer, by G. A. Willmarth and W. R. Kimzey, who visited each county and appointed officers, nearly all of them acted and held institutes in their respective counties. After the Jackson County Institute at Carbondale I went to Marion, where I left Mr. John P. Stelle to help them. He reported to me as follows: "At Marion, Williamson County Institute we had a good interest. The ladies in attendance outnumbered the men. I am sure a lively interest in institutes was awakened."

At Golconda, Pope county, the matter seemed to be entirely new. There was a wide spread feeling of distrust—a suspicion that some ulterior motive was behind the Institute. But the county officers somehow took a better view of it and were untiring in their efforts to make it a success. The result was a fair attendance and a lively interest before we were through. The attendance was almost entirely men.

At Metropolis, Massac county, was one of the best institutes of the season. The attendance was large, that is, large for a first institute, and the interest was all that could be asked. The attendance was about equal between the sexes.

Saline County Institute at Harrisburg was a good success for the first effort. This county was organized last spring by G. A. Willmarth, L. N. Beal, Mrs. L. N. Beal and S. T. Maxey, while enroute from Franklin County Institute to White County Institute, while waiting for our train. As we had two hours at Eldorado, we gathered as many farmers as we could and stated the object to them, by our suggestion they nominated and elected officers. I state this for the benefit of institute workers. That many times we can do good work in the institute cause if we will only try and see what can be done. I have had a large correspondence with parties in Pulaski and Johnson counties, where the officers appointed as stated in the commencement of this report will not act.

I could have others to take hold and have an institute in said counties but they hesitate to take the matter out of the hands of appointed officers. This can be remedied before another season's institute work commences as I have the promise of men in each of the counties mentioned that *they will* work the matter up.

I have no further report of counties in the district, but hope the Secretary Charles T. Mills has. If my own district dates had not been at the same I could have done better work, as it was I did all I could by correspondence in encouraging them and giving such advice as I thought suited them in their first attempt at holding Farmers' Institutes.

Respectfully submitted,

L. N. BEAL.

AFTERNOON SESSION, 1:30 P. M.

The convention met at 1:30 o'clock p. m., pursuant to adjournment.

Mrs. S. Noble King assumed the chair, and the usual program of the afternoon session was taken up: Ladies quartet, Mrs. Wagner, Mrs. Bailey, Misses Grace Best and Blanche Lytle, Princeton.

Mrs. King: We will have the pleasure this afternoon of listening to the address of Mrs. Joseph Carter, President of the Illinois Association of Domestic Science, of Champaign, Illinois.

Mrs. Carter addressed the convention as follows:

Mrs. S. Noble King.

Mrs. President, Ladies and Gentlemen:—Possibly before I begin reading my paper, I had better make a word of explanation in regard to what we are trying to do. There are clubs in plenty for women of the towns, but our farmers' wives have nothing especially their own, and we are organizing this association for the farmers' wives and daughters, hoping that they will take hold of the work, and work as auxiliary to the institute. Every county will have its organization. It will be very simple. A president, vice-president and secretary are all the officers needed, and they will form the executive committee. We hope they will see to it that they are given a place on the program for at least one session of the Farmers' Institute. That they also have their own separate meetings for at least one session, if not a whole day, and take up the topics and discuss them as the farmers do their work. As I will show in my paper, we are planning our association to be an auxiliary to the State association. We have been very kindly dealt with. This organization will simply direct the work, but the real work will be done in the counties, and we do hope the farmers' wives will take hold of it and make it a success. The value of such an organization I can hardly

Mrs. Joseph Carter.

tell you of. In Champaign we have had one for two years, and have done only the most plain, practical talking about our household work and it has been of infinite value to us. We have had some lectures, but most of the work has been our own. The most informal afternoons are the ones that seem to please the women the best, and are the ones from which they seem to get the most help.

This is what we hope the ladies will do. I am very sure it will pay you all.

Nearly all classes of workers are organized for meeting annually, or oftener, for the discussion of their work, for comparing methods and results, and for planning for changes and improvements which will bring greater success, and all have found it profitable to lay aside their work for a little while and meet for this purpose.

But one worker has worked alone, the housekeeper; with no aid from this, or any other source, she has had to solve her own problems, and think out for herself such changes and improvements as she saw necessary in the affairs of the home. It is a little more than half a century since the first agricultural society was formed in this State. Since then all Illinois farmers have had their organizations and each of the separate interests of the farm has had its own organization, horticulture, the dairy, the stock and all, save the housewife and her work of home making.

If we compare the farming of fifty years ago with the methods and results of farming at the present time, we see what these organized societies have done, not only for the farmers themselves, but for the world. It would be waste of words to enumerate the benefits, but it is hardly possible that all this could have been accomplished without these organizations.

One is led to wonder what might have been done, and what housekeeping would now be, had the farm wives formed societies fifty years ago and planned and worked for better things in housekeeping as did the farmer for their work, and we wonder what will be the result of fifty years of organized effort for improved methods and greater knowledge in household economy.

We are fully convinced that the future has in store for us things far in advance of what we are now doing, if we will strive for them, but so long as we remain content with our present condition and knowledge we shall make no progress.

Believing that what has been good for other workers to do would be equally good for the housewife, a number of ladies who were in attendance at the last meeting of the Illinois Farmers' Institute met and formed the Illinois Association of Domestic Science. Mrs. Carriel presiding, and Mrs. Dunlap acting as secretary. A president and secretary were elected for the coming year, a list of names was secured of ladies who would be interested in this work, one from each congressional district. No further business was transacted. A very small beginning, but through the kind courtesy of the management of the institute very much more has been accomplished than otherwise could have been done. They have rendered us valuable assistance by sending out our circulars from this office, and by making provision for us at this meeting, and I would for myself, and for all ladies interested in the cause, express our thanks for this very generous treatment we have received, not only to the State board, but also to the officers of the County Institutes, who have so materially aided us in carrying plans for organization in the counties.

This association is to be to the wives and daughters of the farm, what the institute is to the farmer, but while distinctly an organization for them, all other housekeepers' clubs and Domestic Science Associations are invited to join with us.

At very many of the County Institutes this winter Domestic Science has been given a place on the program. A number of the counties have organized Domestic Science Associations, and in counties where none has been formed, delegates have been appointed by the president to attend this meeting. An organization independent of the Farmers' Institute, would be far less useful, if it would succeed at all; but with the aid of this already well organized body, and considering ourselves really a part of it, we may immediately begin good work.

There are several lines of work, but our first efforts should be given to interesting all women in this subject, to the end that every county may have its association in the near future.

It has been suggested that a course in reading, on Domestic Science topics, be arranged for clubs where their formation is practicable, or, for the individual reader in her home. Whatever else may be done the future will develop.

Besides in some measure seeking to benefit ourselves, we have another and more important work, for it is far reaching in the good it may accomplish,—that is, to lend our aid, by every possible means, to the providing for all girls a scientific, practical and systematic training in household economics, that future housewives may take to their work a thorough knowledge of it, both as an art and a science.

We believe this is justly due to all women, and that no other special training for a special class of workers is more needed than this, or will be more valuable in its benefits to the world. It is wholly unreasonable to expect women to know this science and to be expert in the art without being taught.

If it is necessary to train the architect who plans the house, is it not as necessary to train the woman who plans and shapes the life within it?

Already in some of our public schools this is recognized as a necessary and possible training for them to give, and it has ceased to be an experiment and is a settled fact. But for the daughter of the farm, where in the ungraded schools of the country this teaching can not be given, some other provision should be made, and also for those who would make a more extended study of this subject than can be given in the public schools. The agricultural colleges of many of the states have provided this instruction. But the daughters of Illinois have no such opportunities.

Our university offers to her sons every advantage for preparation in any of the arts and professions they may choose for their life work, and to the young women she has opened wide her doors to every department of instruction, but has not yet provided this one which would fit them for life in such a manner as nothing else can do.

Let us hope that a change will come, and that in the agricultural building which we hope for, a place will be provided where young women may obtain a thorough training under competent instructors and with university methods in this most important science, for what is there more worth the doing by any woman than the making of a home; and if so important, then surely it is worth a careful preparation by the home maker for her work.

Still another work for this association is to give what assistance we can in any way to the advancement of the cause of domestic science. Already a bill has been introduced into Congress for the establishment of a bureau of Domestic Science. There will be other work of this kind and whenever we can we should give hearty coöperation and support.

This association begins life under most happy and favorable conditions. It has a broad field for its labors. It is no passing fancy of the hour, but has a definite purpose: that is to learn more of the work of home making and to teach ourselves and others to put a just estimate on its value and consider it worthy our best efforts. The home is the foundation of all civilized life, as the homes of a people are, so is their nation,—as the American homes are. That will be this nation; they should be the best in all the world.

Sound bodies, sound minds and sound morals are made only in the home.

MRS. KING:—I am pleased to introduce to you this afternoon Mrs. Henry M. Dunlap, of Savoy, chairman of a committee from the Federation of Women's Clubs, to further the interests of women students at the University of Illinois, who will address you.

Mrs. Henry M. Dunlap addressed the convention as follows:

THE WOMEN STUDENTS AT OUR STATE UNIVERSITY.

We have situated in the midst of this fertile, broad and beautiful State of Illinois, a State University.

One in which, by the generosity and benevolent spirit of the people of our State, our boys and girls may secure an education at a limited expense. One that for the boys many of the practical arts obtainable, as well as the intellectual.

One that is designed to help the agricultural, horticultural, floricultural and mechanical interests of our State in a prominent way.

One whose aim and scope for the boys has grown broader and more practical as the years have been added to its number.

One in which every citizen of the State should feel justly proud, inasmuch that one of its greatest features has been the proper elevation of labor to its intellectual and scientific position along the lines pursued by our boys.

Let us look, for instance, and see if our pride can continue when we glance at the present condition of our girls at our university. Has the same thought and effort been expended in teaching and developing the practical side of their nature and in elevating and dignifying the labor devolving upon them as women and home makers of our State.

As I look the university catalogue over do I find a practical womanly course for the girls as I find for the boys? Why this difference? Who is to blame? Do our girls not need any training of the hand along with the head? Does the knowledge of the practical side of their life come intuitively and without effort? Have we degraded and deemed science did not need to enter into that most important and wonderful work for which they are held responsible, the feeding and nourishing of the human body, the making and building of home life, the training and rearing of the children that are to bless the homes of our State and that are to shape the destinies of our nation in the coming generation?

As women of the State, let us look toward the present condition of affairs, as found not only in our State University but in most of the educational institutions all over our broad land. Are we responsible in any way? Have we any duties to perform? As one who in the past four years has been led to look into these conditions and view them with a critical eye, I fear that we must accept much of the responsibility and then discover our duties and follow them out towards the end of correcting and improving them.

We have not asked or demanded the opportunities. We have not considered the importance of sanitation and dietetics in the economy of life. We have degraded the labor of the home and all that perform it. We have through our very ignorance of the science of home, disliked the duties of home making and have thought to avoid its cares and responsibilities.

Have we asked or demanded a better education for women. When the dean of our woman's department could say to me, as she did a few days ago, "We are making out a course of study along household science lines and have the facilities here now for teaching everything but cooking and sewing, but what are we going to do for students, as the girls are not seeking it or willing to take such a course." Have not the mothers of the State had the rearing of those girls and are they not somewhat responsible for their lack of interest in home science. Is it possible that mothers can feel they have given their daughters the highest, truest and best conception of life when they do not wish to develop their God given profession of home maker to its highest profession. If such is the case, greater is the need for agitation of the subject, and the placing of that department in the course of studies for our girls, that the few who see the possibilities which lie therein for them, may be gratified and that they may prove a haven to the whole of womankind.

Spencer says, "We infer that as vigorous health and its accompanying high spirits are larger elements of happiness than any other things whatever, the teaching how to maintain them is a teaching that yields in moment to no

other whatever." Our thinking, reasoning minds will certainly concur in the words expressed by Spencer, and at the same time will also see that human-kind are not teaching that science or elevating it to the position it should occupy

Our girls have been graduated from our universities, educated as the term goes, but have they when all the knowledge acquired tends to carry them away from the science of the home and does not even give them the power of applying much of the knowledge acquired to home matters.

The science of biology and chemistry as applied to household affairs has had a rapid growth in the past twenty years, and the wife and mother who expects to give to her home and loved ones the best food, properly selected, prepared and combined, must make of these sciences a study.

She must deem the knowledge pertaining to the home above all other to be desired and feel herself not competent to enter the profession of home maker unless she possesses some of that knowledge in a greater or less degree according to opportunities presented.

During our late war there were more trained nurses applied for positions than was needed, but not any trained cooks. If it had been the reverse and trained cooks were in the majority, we would not have had so many sad, sorrowing homes, for more died in the hospitals than by shot and shell. Could not much of the sickness been prevented if science had been brought to bear upon the preparation and combination of foods? If we had been studying foods for man even as much as we have been for animals, I am certain many of our soldier boys might have been saved.

It is certainly time that we begin to realize the importance of training our girls in the art of home making, and I hope that through our Farmers' Institutes we may become awakened and scatter seeds of thought in the minds of our farmers' girls, that they may seek and require the teaching of domestic science at our State University. We hope some day for a short course in domestic science, even as we now have a short course in agriculture, where our farmers' daughters can go for the period of six months, or a year, if greater advantages can not be granted her.

A growing demand is coming for teachers in our public schools in household science and sewing, and that demand should be met by our college graduates. Bring to us rapidly, not only to our college girls, the opportunity to train their hands, but to our girls in our public schools, and the land will soon abound with happy, healthy, attractive homes.

We degrade the work of our home and those that perform it, but we will not when it is thought necessary for mistress as well as maid to understand its science.

Because of our ignorance of the how and wherefore of science in our homes, we dislike and dread the cares and responsibilities of home life.

Out of all the present condition of things will arise a new earth when woman again steps back into her natural sphere and brings with it her growth along the intellectual and scientific lines that she has been pursuing since the higher and broader education has been granted her.

What are we asking for?

Why should it be granted?

The greatest wealth of a state is the trained boys and girls.

Why do we want a woman's building?

Help us farmers and farmers' wives.

"And we this year are asking for a women's hall or building, where the girls can go from our homes and have proper food, proper care and proper attention. That you may not fear to send your girl to our State University that they may receive the ordinary opportunities that are there for them and the many more we hope to have. And we are also asking for a household science department, a home science, if you please, or whatever you may wish to call it, and we trust that science, will be placed in the agricultural building where it belongs, for agriculture and home science go hand in hand, and it is

our wish that you lend your best thoughts, as the mothers and fathers of this State, and bring into your girls' lives a desire for this higher and better knowledge of the home. That we may better build homes and not live in regret of the past, through ignorance that should not be ours. And I wish to say that there is not a better wealth for any state or nation than the training of the brain and the hand of your boys and girls, and every dollar that you put into it will return to you in the ten fold measure. And remember, the State University stands for the girl and boy that has to labor for her education. It is not for the girl and boy who can have, if they desire, every opportunity in life, but it is for the boys and girls who are struggling for educations. And I pray you, that you will say to your legislators, 'grant the money needed for such educational things as these,' and there will not have been so much go to our insane asylums and our penitentiaries and our reformatories. I hope this Farmers' Institute will go on record saying: 'Give to these girls their proper education and give them the building that they may go there and be cared for, and receive the education.'"

Mrs. King. Mrs. Emma S. Lovejoy will address us this afternoon on the subject, "Nutrition."

Mrs. Lovejoy delivered the following address:

In looking over the program of this institute, I am impressed with the wisdom of the program committee in selecting professors and specialists to address you. If a man has not the title of Reverend or Professor he is generally so fortunate as to have that ambiguous title, 'Honorable' as a prefix of distinction. And the committee have been just as fortunate in selecting women who are interested in special lines of work.

The subject 'Nutrition' deserves a specialist, I know. No one but a chemist or physiologist, a teacher or professor of domestic science, has really any right to talk upon this subject. I have none of these accomplishments. I have simply the honorable distinction of being a farmer's wife, and a farmer's daughter. And I know of no better way for the women to keep pace with the evolution of the men than to strike out on the topic 'Nutrition.' It is a hard study. It is harder than the study of the latest novel, but infinitely more interesting and profitable when one's taste is formed for it, even when one can claim no scientific knowledge of it.

A realization that the health and happiness of our households largely depend upon what we allow them to eat, is enough to lead all intelligent women to desire to make food a matter of conscientious study. True, we seem to be so busy keeping house that we have little time for real study of any kind. Some one says, 'Men and women are so busy getting a living that they do not live much.'

"Six hours a day the woman spends on food!
Six mortal hours a day!
Struggling with laws she does not understand
Of Chemistry and Physics,
And the weight of poverty and ignorance beside."

"Whence come diseases?" "From the kitchen," said Plato and Seneca. "What is responsible for more than half the ill health that embitters human life?" "Avoidable errors in diet," says that eminent English authority, Sir Henry Thompson. "What is the labor question?" Concretely stated, the struggle for a higher standard of living." Says Commodore Carroll D. Wright, "If we care for men's souls most effectively, we must care for their bodies also," says Bishop Foster.

Our noted economist, Mr. Atwater adds to these words of philosopher, statistician, physician and divine, by saying, "Half the struggle of life is a struggle for food." And what is food? That which, when taken into the body, builds it up and repairs its tissues, or which is consumed in the body to yield energy in the form of heat, to keep it warm and create strength for its work. That process, by which one food is digested, assimilated and made nourishing we call Nutrition—from the Latin *nutrie*, meaning to nourish.

I shall not dwell on those various intricate changes which a particle of food undergoes before its final transformation into tissue or energy. In this brief paper I can only invite your attention to some of the main principles of Nutrition.

We all know that our bodies are composed of fourteen or sixteen chemical elements—the chief of these being carbon, hydrogen, oxygen and nitrogen. It is easy to see then that our food must contain in some form or other, all these chemical elements in the right proportion or we have that bane of modern life—mal-nutritism.

It has been found by those who study the matter, that all foods belong to one or more of five classes of nutrients. When we go to our cellars and pantries we recognize that the food there is from the animal and vegetable world—it does not usually occur to us that the air we breathe and the water we drink, are also foods, and that in proportion as they too are pure and plenty, we are properly nourished.

If the farmer's wife recognizes the importance of the fresh air with which she is so abundantly surrounded, she would hardly be so careful to draw the shade and close the shutter for fear the blessed old sunshine will spoil that precious new lace curtain or carpet.

When we remember that water constitutes between two-thirds and three-fourths of the entire weight of the human body and that a healthy adult requires, counting all the water in both liquid and solid food, not less than four and one-half pounds daily—perhaps then we shall drink water more abundantly. Some of us evidently have not kept up this proportion—that may be one reason we are not better illustrations of our topic.

The next inorganic constituents of food are the chemical salts; as carbonate of lime for the bones and teeth, phosphate of lime for the muscles and system, iron for the blood and various alkalies for the liver. One great value of green vegetables and fruits is to furnish the system with chemical salts.

Now we come to that class of food furnished us by butchers and grocers—the product of the farmers' effort. The nitrogenous foods, so called because they contain nitrogen, also called albumenoids, because they contain albumen, also proteids, because they contain the substance protein,—all the muscle forming foods familiar to the housewife in beef, mutton, poultry, eggs, milk, cheese, and also in vegetable foods, especially the cereals, so these may often be substituted for animal food, as vegetarians claim, especially beans, peas and lentils.

We understand readily that physical energy is only obtained by proper nutriment—we do not consider that nerves also demand special foods. Worn out, ill-nourished nerves often invoke our pity—seldom our sympathy. "Alas for the rarity of Christian charity!" in this respect. The nerve and brain foods are the phosphates found in lean of meat, fish, cheese, oatmeal, beans, and in whole wheat flour. While this is a subject old to some here, it is new to many. I can not pass the opportunity to urge the more general use of whole wheat flour. It is not a fad. The nourishing part of the grain, that next to the bran, is retained in the milling of whole wheat flour, as it is in graham, but the objectionable hull or bran of the graham, is left out. We can not give our families one single food that comes so near a perfect food as good whole wheat bread.

The non-nitrogenous classes of food containing only carbo-hydrogen and oxygen, or those which give heat and force, are the 'fats' and the carbohydrates (or the sugar and starches). Fat is chiefly obtained from animals in the form of adipose tissue, cream of milk and fish oil. Many vegetable substances also furnish fat, as corn, oats, cocoa, beans, walnuts, butternuts and the berries of the olive tree—vegetarians again claiming these provide all the fat necessary.

We know that some people, especially those engaged in out of door occupations, readily dispose of the fat of beef or bacon, while others digest fresh butter only.

When Wellington was asked the secret of his success as a military leader, he replied, "Plenty of crackers and bacon." The great Duke would have been too wise to put brain workers on a diet so difficult of digestion.

As a rule, animal fat is not so easily digested as vegetable oils, hence the great value of olive oil, nuts, etc. It is important to remember that fat is especially necessary when growth is most rapid. If a child looks pale and weak and thin with no apparent cause, the wise physician advises a palatable preparation of cod-liver oil—this being a pre-digested and highly nutritious food, standing at the head of foods—for heat, nutritive power, time for digestion and total desirability.

Many eminent doctors claim that fat eaten in sufficient quantities, is a preventive of much of that defective nutrition which finally ends in chronic diseases, in scrofula and in consumption.

On the contrary "they are sick who surfeit with too much" carbonaceous food as they that starve with too little. Over-eating of fats and of sweets produce skin eruptions, unduly increases adipose tissue and impairs health, (as well as good looks).

It is a mistake that in many families the sugar bill almost if not quite equals the flour bill. Because the sugars and starches are the cheapest foods, they are most apt to be used in excess, especially in the homes of the poor.

White bread, and potatoes, corn, rice, macaroni, tapioca contains large proportions of starch. This starch must be turned into sugar by our digestive organs and their secretions before it can be taken up into the blood, and if the stomach is given, at a time, more than it can master, certain fermentations take place and indigestion is the result.

The best authorities state, that without doubt the severe stomach and bowel troubles of small children are due to the fermentation of starch foods for which their little digestive organs are not ready.

Do not, therefore, give the baby too much potato nor make too great use of it yourself. It is not a muscle maker nor a food which produces a solid growth. The chemist will tell you that by analysis six pounds of potatoes have less nourishment than one pound of oatmeal.

Above all things let us get rid of our prejudices long enough to look carefully into these questions. I know there is a disposition among many otherwise sensible people to criticise and dismiss all scientific inquiry out of the realm of the kitchen. They say: "It is well enough for farmers and horticulturists to consider what foods best nourish animals and plants, but a man's appetite ought to tell him what he wants—nature knows what she is about. Eat what you like when you like and as much as you like."

This is philosophy becoming to the child but not to the grown man and woman.

Any physiology will tell us that frying is the wrong method of cooking—because it demands double work in digestion—but because it is an easy and common way, we go on frying our meats, potatoes and eggs, mush, etc., with unconcern, ignorantly inviting poor digestion. That word digestion! How it seems to be the Alpha and Omega of human life! Over and over we hear it repeated, "We live not upon what we eat, but upon what we digest."

Yet over and over we daily violate various conditions of good digestion with which, in this enlightened day, we ought to be familiar.

First in the right selection of food, remembering that our diet must consist of nitrates, phosphates and carbonates in the right proportions and combinations, some study of dietary tables will help us in knowing what is right. When we have pork and beans we do not need potatoes, rice nor macaroni.

Proper combinations of food is a matter for mothers in the country to study when they prepare the children's luncheon.

Who will undertake to reveal the mysteries of the ordinary lunch basket? A hard boiled egg, pickles, cheese, white bread and butter and jam and jelly, or if the bread jar is low, a piece of cold Johnny cake—possibly a cold pancake—if for a boy, possibly two pancakes, and to compensate for this plain

fare, that marvelous structure—a mince pie—pie of some sort always, and cake or doughnuts and cookies—and then wonder that your child has headaches and bilious attacks.

Our eminent authority, Mrs. Rorer, tells us what constitutes a suitable luncheon: "Chopped meat sandwiches, of chicken, beef, mutton or tongue, with whole wheat bread, or a sandwich with a layer of figs, or chopped nuts, or an egg put through a vegetable press to make it easier digested, with apples or other fruit."

When we have selected foods to afford nutriment and avoid monotony, then comes proper cooking of the same, so as to bring out their full nutritive value, egg boiling and not over-boiling potatoes; thorough cooking, not under-cooking all cereals—making a steak or roast juicy and delicious instead of dry and tasteless or tough and greasy.

We were told from this platform recently that one may get more nourishment from 5 cents worth of beans properly baked than from 75 cents worth of meat poorly cooked.

Emerson uttered a scientific as well as a moral truth when he said, "There is a right and wrong way to do everything, even to boil an egg."

Though an egg is equal to a pound of meat in nutritive power, it will severely tax digestion if not properly cooked.

Speaking of eggs, I can but urge the farmer's wife to guard against false economy here. Often they and milk and butter are used sparingly, that many may be sold to buy the tea and coffee which, though palatable, are stimulants and not nutrients.

I have seen farms where nothing could afford to be eaten that could be sold, and everything that couldn't be sold had to be eaten.

After foods have been wisely selected and prepared for the table a most important consideration is proper mastication.

It is related that Mr. Gladstone was so impressed with the importance of perfect mastication that he made it a practice himself, and taught his family to do the same, of taking thirty-two bites for each mouthful of food, one for each tooth in the mouth.

The physiologist further states that food should be slowly swallowed, with freedom from anxiety, at regular intervals and not immediately before great physical or mental effort.

Proper exercise, bathing and plenty of sleep are essentials to good digestion.

When we have attended to all these things we shall be able to say with Jenkin Lloyd Jones: "I believe the time is coming when poor digestion will be a reproach not only to the victim himself, but to his parents, for they brought the child up in the way he should not go." I speak not for the idiosyncracies of would-be reformers, nor the peculiarities of individual tastes. I only urge that we need the primary principles of science and abide by the plainest judgments of the physician if we would be successful home makers.

Mrs. King: Ladies and Gentlemen—I have a most pleasant surprise in store for you this afternoon. Mrs. Sarah Tyson Rorer is with us, and we shall be pleased to hear from her.

Mrs. Rorer addressed the convention as follows:

Mrs. President, Ladies and Gentlemen:—It was not my purpose when I came here today to say one single word to you. I came simply as a listener and I assure you I have enjoyed the afternoon more than I can tell. Coming to Princeton so often as I do I feel that everyone in the building must really be afraid.

You have heard this afternoon a most excellent address on "Nutrition," and it is my wish that you should take it home and put it into use.

The average farmer in selecting his cows, selects such cows as he can find for butter purposes. If she fails in such purpose he quickly shuts her up and fattens her for beef. Also, if he wishes to sell a hog quickly to get a little extra money he quickly fattens him up and sells him. Does he do the same with his children?

Not because he does not think of that family much more than anyone can tell, but simply because his thoughts have never been directed along that line. I would like to make a statement and each of you must take it home with you. Each human being is an architect, and the human body is the result. You are as you have made yourselves. This I would like to impress upon the farmers' wives. I am coming down to a very simple statement, but a true one. It is of the greatest importance that every child should be an architect, and that she should be an architect for herself and as a matter of building the children and men of this great country. Please do not forget, you men of the universe, please do not forget, that every man that is great is made so by his mother, and that the women of this country are the mothers of the men, and to the ultimate results of these laws, be they good or bad, we must look to the women.

Men are bread winners. They have been brought up from infancy to look to the building of the country and of politics, and to leave the family and the care of the home to the wife. Let every woman, when she progresses, not try to do that which the men have done. Let us have a higher aim. Do not try to do what men have done, but let us advance along womanly lines. Let us at once see how we can make better homes and happier families, and thereby better men for this great country. We have so much food in this country compared with the foods of other countries, and it is so badly cooked.

I did my first work with Commodore Vanderbilt in the slums. There they fried everything—onions, potatoes, meat—everything was fried. The frying pan was the most important element in the district.

Do not mix digestion with nutrition. Fatty foods, you have heard today, are absolutely necessary to the nutrition of the body. The girls in all the public schools should be taught to cook. The mother should not be expected to teach the girl to cook at home any more than she should be expected to teach her grammar and arithmetic.

The farmer's wife must have meals on time, not because it is necessary, but because we have accustomed men to getting their meals when they ask for them. When a man comes in at twelve he expects to find dinner prepared. Here are little girls who want to assist mother. She will quickly say, "Girls, get out of my way, get out of the kitchen, you bother me," and they never learn. They go to the University and come back to the farm only to quickly leave it because they do not understand their work. The schools are teaching the girls, not to put them into the kitchen, but especially to put them out. The woman who understands domestic economy plans her meals a week ahead, but she doesn't stand at a table five hours making a layer cake that will take five minutes to eat and make five weeks of indigestion. What we want to do most of all is to keep the women out of the kitchen.

Each person on this platform this afternoon has made a strong plea for university cooking, and I will make a stronger plea. The farmer's wife must have something to help her out to a comfortable old age. In the clubs of domestic science each group of you get together and see how you can better improve your home and train the men who will not expect what your husband expects of you. Then your daughters will not have the obstacles to overcome that you have had all your lives.

Let us have good, well selected food that will not crowd out all the time in preparing it. If I had to go through the unsystematic way in which the average housewife prepares a meal I certainly should not think it pleasant.

I thank you all very much for giving me this opportunity, and as you go home carry with you some of the thoughts given you by these excellent papers, and they may save you many hours of suffering.

Mrs. King: Mrs. Mary Turner Carriel will address us this afternoon on "Our University."

Mrs. Carriel gave the following address:

When your committee invited me to take this subject, my first thought was of my aged father and the great pleasure it would have been to him to have me speak to you at Princeton on this subject, which had always been of the greatest interest to him at Princeton, where the first interest in industrial education was taken and where the first organization was started for this interest. I thought of the many hours we should spend together in reviewing this university history, of his work in establishing, and of his hope for its future growth. But a loving Father has taken him gently, tenderly—so tenderly, softly, into his rest, that he knew not when the great change was so near, and has gone to his reward to be with the Christ whom he loved so well and followed so faithfully through the ninety-four years of his life. So I come to you without the inspiration of his presence and his knowledge, but with the everlasting presence of his loving spirit and tender sympathy.

To every daughter, her father is a hero and a leader, as well as a lover and guide. Blessed is that daughter when her father is also to others a hero and a leader.

The first movements in the lines of industrial education was made in Illinois, and to Illinois belongs the honor of that first step. In 1833 Jonathan B. Turner came from Yale College to Jacksonville to take a position. During the summer vacation he rode over the prairies visiting the log cabins, interesting the farmers and mothers in the industrial and all kinds of education. When his horse crossed the rivers and the plains, for there was not a foot path in any direction, the prairies in their vastness and their solitude appealed to him. The wind, whispering through the tall prairie grass seemed to whisper to him, "How can we be cultivated?" When the doctors left the college halls they were well prepared, but not one single word of help was to be found in any book, in any paper, or in any school or college in all this broad land. Today a young man, a farmer, who starts out in his life work has more than simple energy to make a success of life. He need not toil from one year's end to the other and find at the end of the long year that he has been devoting all his strength to a crop unsuited to his soil and nothing to reward him for his labor. Today he can send specimens of his soil to the University of Illinois and receive accurate and positive information as to what crop it is best adapted for and what insect will mar its growth and lessen its yield. He does not learn by long years of sad experience in this day.

In order to devote himself more especially to this question of industrial education, Mr. Turner resigned his position as a professor in the Illinois college after fifteen years of work there, during that time occupying every chair in the curriculum. A poor man, out of health and with a large family dependent upon the daily efforts of his life, by day he worked and by night he studied and wrote, and when finally this plan of industrial education stood out clear and plain in his own mind, weak in hand and powers, with eyes almost extinguished, he lectured over this State and paid his own expenses. He was led about from place to place by Bronson Murray, President of the Illinois League.

I know the people of Princeton always spoke kindly, encouraging words to him of that work when he needed it the most. In 1853 he was invited to deliver an address at the State Fair of the State, upon the Millenium of Labor. While standing upon the fair grounds in the morning of that day, a friend came to him and said, "Do you know what absurd rumors are flying over this fair ground? They say your home was burned last night." My father took from his pocket a telegram and handed it to him—one he had received from my mother, and to which he replied, "I hear you and the children are safe and will come as soon as my lecture is over." "Do you call me friend, and keep such news from me?" asked his friend. "Tell them, every one," my father replied, "that the lecture will be given at the appointed hour."

He stepped forward and delivered that address. At the close Dr. John ———, the first editor of the *Prairie Farmer*, of Chicago, stepped to the platform and told at what great personal loss that lecture had been given and

added, that there was a little box nailed up by the gateway and all who felt so inclined, could contribute toward diminishing the loss. When that little box was opened over five hundred dollars were turned into his hands, a big sum to him in those days—and every penny of it weighted with the love and gratitude of the farmers of Illinois.

In reading of the efforts of pioneer workers in new fields of labor do you ever read between the lines the life of the wife and mother? My mother! I can see her now with her mild dark eyes, and her skin as fair as the shell on the shore of the southern sea,—timid, afraid of the darkness and storms. One picture hangs on memories wall. Six children are gathered around—one little girl, the others boys—looking up with pleading lips to that father's face as the mother says, "Must you go again, must you go again?" I can see the tender look in my father's eyes and hear his encouraging words, yet regretful tone as he answers, "Yes, mother, but I will not stay long. I will return as soon as my lecture is over." And so the mother, counting the days and hours that must intervene, waited; for trains did not run then every hour nor make connections at every cross road, few and far as they were between. These were the costs and prices which were paid in the early days for the university which today is the crowning glory of our State. Grand and beautiful it stands before us, but it was not established without great effort, great self-sacrifice and denial.

In 1857 a bill was introduced into Congress by Representative Morrill, for the plan grew in the hearts of the people; but they were anxious that it should not be for Illinois alone, but that it should extend to every state in the land. The first year it did not pass in the House; the second year it was introduced and passed in the House and did not pass the Senate. The third year it passed both House and Senate and was vetoed by President Buchanan. Then were the hearts of workers discouraged. But when the campaign of 1861 came on, they knew their bill was safe, for both candidates had pledged their support to this bill. After the election of Lincoln, Senator Douglas wrote to my father asking for a complete history and plan of this industrial university, saying that he wished the honor of introducing it in the Senate of the United States. This was carefully written and sent to the postoffice by my oldest brother, who on the way heard of the sudden death of Senator Douglas in Chicago the day before, June 4, 1861. It was afterward introduced by Representative Wade of Ohio, and ever since our efforts have been accompanied with success. It has grown in our own State marvelously in every way except one. When the university was opened were the best things given to the agricultural department? And it was for the agricultural department that all the strife and battles were fought. If they had attempted to establish a classical university do you think denunciation would have been hurled at them from the pulpits and newspapers? Do you think they would have been met with opposition? It was for that department and that alone that all these weary years of strife were lived. When those long outgrew, they appealed to the legislature, and every department met with a splendid appropriation. The mechanical engineering department appealed for a beautiful new building and today a new building crowns that place. Every penny was appropriated that was asked for and every penny put into it. The workshop the same, the military hall the same and the electrical department the same. And since I have been in the university, we have asked for \$160,000 for a library, and every penny was given freely and graciously. Pupils are coming to it from the State of New York and from Colorado and all the states between, though it is only two years old. A heating plant was asked for and every penny was given, but when we asked for an appropriation for the agricultural building, the very thing we had been so long fighting for, not one red cent could we get. Four years ago we asked for \$40,000 for a building, but not one penny did we get. It was the farmers on that appropriation committee that cut off that appropriation. Two years ago we asked for \$80,000 for the agricultural building, not one penny did we get. There is nothing at that university so needed as the agricultural department, for which the university was established.

The president of every university and executive officer sees that every penny is appropriated to the purpose for which it was given. Not one single penny

is devoted to anything else, no matter how great the need may be. And one record which has been made by that university, that has been made by no other, is that every building on that university campus has been erected for the sum appropriated. There never have been walls put up and left unfinished for the next legislature to appropriate money to complete it.

There are just two things in all this wide world that a nation can not do without. No nation since the world began ever did do without it, ever will do without. We have done without lawyers and doctors, but you never can do without women and farmers. In those two lines our university is weak. It has no agricultural home, it has no women's hall, because that department was added in more recent years. But we believe we will get both now. There have been many complaints by the agricultural students, for they have been in the attics and basements. Where would you have them be? Out in the barn-yard or up in the tree tops with the birds and chickens? They must go somewhere. How many students can you win to a university, when they are obliged to put up with the old furniture of the attics and basements, and are only allowed there through the generosity of the departments they are crowding into. Now, why is it? It is no fault of the president or dean, who has worked there through the most overwhelming discouragements. I think it is not the fault of the appropriation committee. I think the fault is this. When all those battles were fought and the strife was over, the farmers thought the battles were all ended, and that it belonged to them for all time, and would always be theirs without their care and protection, forgetting that ever since the world began the battle has always been against the farmer. Forgetting that it is like the battle with sin, it would last through all generations. It must be fought over and over again. They must look after their own needs and necessities. Nobody else will do it for them.

The mechanical department of our university stands shoulder to shoulder with the very best in the United States; the other departments the same. The little experiment station at Havanna stands first in all the world. The records which they send out are unquestionable. The one in Lapland and the one at Buda Pesth all turn to it for its records, and receive them unquestioningly. The scientists have lost no opportunity to point the finger of scorn at their own nations because they have no experiment stations equal to the little station on the Illinois river. Our department would be equal to this if we could only have the appropriation. We receive the interest on \$480,000, but not one red penny can be expended for a building. The income can only be used for current expenses. How can we get along without any building?

They tell us in Springfield that the appropriation is in exactly the same danger this year that it was two years ago. The very men on that appropriation committee, who are farmers, are going to vote against it. One man told me, a farmer, that he would not give one red cent to that university, and in that conversation he said he had several boys and girls and every one he had sent out of the State of Illinois to be educated. I told him that I would be ashamed to be a man in the grand State of Illinois and send my children outside for an education when we were eminently able to give it to them.

And now I would like to speak to you of the president of that university. I could give you such a description that would make every one of you rise to your feet with a glad hurrah. He is the right man in the right place, a man of wonderful executive ability and a friend to all your interests. Not long ago one of the professors of Harvard said to one of us: "Do you know what a grand man you have there at the head of your university? You want to treat him well for there is more than one plan of the national government to get him from you." Let us support him and defend him. Defend him from misrepresentation which are sure to attack any man or woman who stands upon a higher plane. Just as the tall pine receives the lightning stroke and the bramble at its base goes unharmed.

Mrs. King:—I know it will be a great pleasure to you this afternoon to listen to Mrs. Nellie Kedzie in her address, "The Profession of Housekeeping."

Mrs. Nellie Kedzie, Professor of Domestic Economy, Bradley Polytechnic Institute, Illinois, addressed the convention as follows:

In this day of such sharp and pitiless competition that every energy must be bent to any kind of work that is taken up, in order to make it a success, there can be no question in the minds of men and women as to the amount of preparation that must be made for any line of business that any man or woman enters. When a farmer plans to put his boy on the farm where he has delved and toiled to make his living—to make a home—he plans for that boy to know all that he can possibly put into him, about the science of farming. He plans to have that boy know something about the composition of soils, to know something of the yield of different crops, to know something of the breeding of cattle, to know something of the varied routine that must come. He plans to have that boy understand his business before he takes hold of the farm, to make of it a better farm than his father made it.

When a man plans to put his boy through any of the professions—as we speak of them today—he plans every time to give to that boy all the training possible, to give to him all the

Mrs. Nellie Kedzie.

knowledge and preparation that can come to him. And is there any question in the minds of anybody today about the advisability of a woman's planning, of a woman's preparation for whatever she is to do? Are women so much better—have they so much more ability, so much more brain than men—that they can take up a life work without any preparation? No! The only thing is this: Women have taken up their life work and have done it as best they could without preparation. They have made their bricks without straw, but they have made them as best they could, and that best has made woman a glorious success, for she has put her life into the work.

When we can come today to the point where we talk about the "Profession of Housekeeping," we mean something that has been planned fully—that has been worked for—prepared for. The profession of housekeeping should mean as much to us as the profession of farming—of doctoring—of ministering unto a congregation—of planning for the law business of the world. There should be no question but that this word "profession" does belong to women just as it belongs to men, because we are entitled to it. Profession means something for which we have made much preparation and for which we have given much time. We are told that a profession needs much work in order to prepare one for its existence. So when we say "The Professions," the profession of housekeeping, we mean something that a woman has prepared herself for—something she has entered into, ready to do her best wherever she is.

We feel sometimes that our girls need only the help we can give them. I fear we are afraid to put upon them the burdens and responsibilities; we are afraid to ask them to take up the cares as they come along, and so we shield our girls, forgetting that by and by they will of their own accord shoulder these burdens, and then they will be so heavy they can scarcely be carried. And sometimes the broken hearts will send up a cry for help—all because they were not prepared.

When a woman plans to go into a home which has been prepared for her, when she plans to take up the duties of household life, it seems to me she can only have expected the father and mother to have done for her all that they could, in their best judgment, to prepare her for that work. To have been wise enough and strong enough to have given her the preparation she needed for the coming day. Have we done it? Have we given them what they need to fit them to step into the homes that are needed in the land? Sometimes we feel that these girls of ours have too much of school, too much of church and community work. And perhaps they do. But one of the ways in which to help them toward being helpful to each other, to their neighbors, is to make that work so easy in their hands that there can be no question but that they can carry it. And so I plead for the word, "Profession," in the manner of housekeeping. I believe if we will only dignify that work which means more to us than any other, there will be no question about this preparation.

Remember your own Lincoln, and ask of the years that have gone by where he put the responsibility for his power and greatness. Do you remember what he said about his mother? That woman who took his own mother's place, the mother who trained him in strength and power of thought? Ask any of our great men of today where they gained their inspiration—where their power lay—and they are glad to say, "My mother did for me all that was needed." Can we question about the power of motherhood or the power of the profession of housekeeping?

There are a good many ways in which we are given this preparation for our girls and women. It seems to me one of the very best thoughts is to give them the strength of looking at their work as being the best work in the world. What woman ever stepped over the threshold of the man she loves, but what she feels in her heart she will do everything possible to make that home a center for good and glorious work? If a woman will feel that every day, if she will feel that her profession is the strongest profession she may enter, there can be no question but that she will bravely live through every trial that can come into her life.

One of the first preparations is the matter of hand work. You have heard me speak of it before, and I always talk of it because I think there can be no education without it. The day will come when a man who is educated to use only his brain, will be counted only half a man.

I agree with Ruskin when he says there can be no happy thought without labor, and no healthy labor without thought. And so this manual labor, this hand work, must come in. One of our writers said a little while ago, "If you ask me to describe my idea of a heroine, I shall say it is an educated American woman who wears the gowns she makes with her own hands." And when the thought has come upon us that we will do anything that we need to do, and that we shall know all about our work, then shall there be a beginning toward our true work in a profession.

I went into a great lumber camp last summer and I said to the man who owned it: "Do you know anything about the work outside of your office?" and he laughed as he said, "If I did not I would have gone under five years ago as half the lumber men went in on this river." And I asked him how he knew, and he replied, "When I was a boy I told my father that just as soon as I was through school I wanted to go into his mill, and my father said, 'Well, if that is your desire, then you shall begin this vacation,' and he set me to work picking logs, and when I did not pick logs well he docked my wages; next he stood me in the water, sometimes up to my arms, hauling the logs out, and then he made me attend to the saws. It took me four years, and then three years after that to step into his office and begin work with him, and then my father said that perhaps some day I might learn to be a lumberman."

I went only three weeks ago into a glucose factory and the man who took me through that factory showed me what they did with sixty thousand bushels of your corn every three hours. He showed me the three kinds of starch, three kinds of dextrine, three kinds of sugar and syrup, and the black stuff they use for a substitute for rubber. And I said to him, "Do you know anything about making all these things?" And he also said, "If I didn't I would

not be here; they would not keep me five minutes as the superintendent of this factory if I did not know all these things." And I said, "Could you step in and do any of the work?" and he replied that he would hate to take the sugar boiler's place, but that he would be able to take it in a few days—hardly on a moment's notice. That man knew all the processes that were going on there. It is just so in every walk of life. You do not trust your money with a banker who knows nothing of banking business. You do not trust any of your business work with men who do not know all of the processes. And why should we women trust ourselves and our families into hands that do not know sufficiently of their profession—the profession of house-keeping? Why should we expect raw girls from Sweden to come over here and go into our kitchens and expect them to run our houses properly, when we do not know how to do the work? Is it not fair to suppose that a woman ought to know more about her profession than any body? It is not necessary that she shall do it every day. That lumberman today does not stand in the water and haul logs; that glucose man does not attend to anything, but only manages and keeps the strings that make all that great factory. And why should not women learn to do, and know all the ins and outs, and why can not they then stand and hold the strings and keep the household work going smoothly?

Men take up a profession and follow it. Women do, too, sometimes. A man plans to be a chemist and he puts his strength and his life into learning something about foods, in trying how to find new mixtures, and new absorbents and new elements in new materials. Our chemists have found out within the last few years that sugar beets can give us as good sugar as can be obtained from the cane, and it is only a few weeks since I heard from Michigan about beet sugar work up there. They have made enough to pull \$45,000 bounty out of the treasury. All that work was done by the chemists because they found out how to make the beet sugar, how to make it into the marketable product. The same chemist has done a world of work for the farmer. It seems a great deal to the farmer to raise twenty tons of beets to the acre and be able to sell those same beets for \$4.50 a ton, but that is just what is happening up there in Michigan. The chemists have planned and worked out problems and have learned that wheats of some varieties will give more bushels to the acre than others, and is it not worth finding out that the wheat which gives more to the acre will give just as good bread as the variety which gives less?

Why should not women follow in their footsteps? The women, into whose hands they give the products of their labors. Should not she plan to make their productions just as effective as possible? So, when she has learned to make her garments, she must learn to use her brain just as well in the planning of her food. No matter how much a woman may know about the value of foods, if she does not know how to cook those foods properly, her knowledge is all in vain. A pound of beefsteak should give 184 grains of nitrogen, but suppose it be fried in grease, which no stomach can assimilate?

Whenever we feel that we must know no more of food values, another knowledge must follow, that of preparing the food. Just here in the line of making the food palatable comes a thought. I know we all have talked about the nutritive foods, that some foods are much more nutritive than others, and some of the mothers have found that they must get hold of these foods and eat of them, but they do not know how to prepare them well. Along the line of planning for food, comes the ability to prepare, and every girl who has the ability to cook well has the power to make anything.

There is no question but that the homes of this land depend upon the food. The men who live in homes where their meals are carefully planned, where they are carefully prepared, are not found to be the men who depend upon intoxicants for their strength. The merchant prince who has his food carefully planned is not the man who lingers over the wine cup.

There can be no thought which ought to come more strongly to a woman than this thought of preparing herself so thoroughly in the line of foods, that she can do what she will with the table that shall come into her keeping. It is not always true that a woman preparing for this kind of work finds it in her own home.

One of the most pitiful cases that has ever come to my knowledge, came to me this winter from a man who said, "What am I going to do? You talk about girls and what they ought to be taught in the homes—what they ought to be taught somewhere," and he began bravely enough; "I have three little girls, one twelve, one nine and the smallest five. Last August we buried their mother—and here his chin quivered—and I have tried all up and down this part of the State to find a housekeeper to come in and do for those girls the work that should be done. I have tried wherever there were agencies; I have tried among my friends. I haven't a relative on earth who can come to me, and so far I have not found anybody to take hold of my home. I can not put my little girls in the hands of the hired girls the agencies recommend. What am I going to do?" And I thought it was a strange thing that we American women have not brought up our girls to feel that there is a profession of housekeeping.

There are some other lines in which the profession of housekeeping needs strengthening. When our girls have learned that not only do they need to know how to use their own hands, but need to know how to teach the women who come to help them, need to know how to do every thing so that they can do it for themselves, and to know how to reach out and teach their neighbors. The best homes in the land are the homes that have been carried on by the inmates of those homes. It has been estimated that eighty-four per cent of the homes are carried on without hired help. If there is only sixteen per cent that are going to employ hired help, there can be little use for the lady who stands by and says, I do not want to know about things. There can be but little use for the woman who does not know about everything that can be known within her reach about foods and housekeeping.

The strongest material to come from this housekeeping, is the building up of character. If a girl feels that to go into a man's home and carry on its work, setting him the best table possible and make that home a growing place, if she feels that that is the noblest work on earth, then she is going to go into it. Women hold the power in their hands to give girls thought and strength in these lines.

If there are children in the home—and no home reaches its full duty without children—there is no end to the questions the little people ask. There is no end to the knowledge the mothers need to know. When the children come in with their hands full of flowers or vegetables, and when they get old enough to raise the vegetables themselves, is it not a comfort to know all there is to know about it, is it not a part of the profession of housekeeping? When these children get older, and have to be taught in such a way that it is not given in lessons, does it not mean a great deal to have the mother have all this knowledge at her fingers' ends? And then comes the patience that comes from the working out of problems that were given her in younger years. Sometimes it takes a world of patience to drive into those little people the thoughts we wish them to hold, and the patient building of the character in the little ones will by and by find its reward as the little ones grow into men and women. And when you question sometimes a great many of the things that go on in this land, a great many things that have come to our knowledge during the past years, the question can only come back to the homes for solution. If the homes had been right, if the mothers had thoroughly learned their profession, if the mothers had been such thorough workers in their profession that they had built up the character that was needed to make clean, honest men, and helpful women, we would not have had any question whether the work and doings in high places were of the best. It always would have been right, for there would have been no thought of anything but right.

The building of character grows along other directions. The woman who stands in her community as being a tower of strength in social matters is the woman who is looked for everywhere. She is almost always the woman who has done anything that has come into her hands. And lest some of the mothers be discouraged with their little girls, I will say that it is frequently the "tom-boy girl" who grows into such a woman. She is the little girl who has had to learn to mend her dress which she has torn, to harness her horse when she

wishes to ride, and the girl who goes fishing and has to pick the fish-hook out of her own fingers, and the quickness and brightness which she has learned in this every-day out-of-door life stands her in stead by and by. She never lacks for power in her household.

It will not be long before we will have these lines of study which I have mentioned put into our public schools. We have them in our schools of higher learning today, and some of these days—it will not be long—we will have it in our University at Champaign, and our girls who will come out will be deft of hand and quick of brain and heart, because they will know how to do what they want to do. And when the day will come when they will go into their father's home or homes for themselves—the blessed ones step into their own homes—they will have the knowledge which they will need to help them all the way along, so that the glory of Illinois homes will be spread out all over this land. The teaching of this science has come to stay. We can not question it any more; we have got to know what we are doing. And when men and women stand up and say we will have plain living and high thinking they must remember it takes a great deal of good living to produce high thinking, and the knowledge that comes from good food is a part of the living which will come to us because our girls will be well trained. This profession of housekeeping reaches out everywhere because there is not any profession but that is made from this profession. A woman who stands and sees her sons go out and take different lines of work must remember that she has given them the example and that they have done only what she has set before them.

God gave us a picture in this world of what heaven may be to us. That picture is a home, and the best homes in the world are simply a foretaste of what heaven may be to those of us who go. Sometimes I think that you people of Illinois may grow weary of hearing us talk of home and home-making, of the necessity of this line of work for our girls and the needs these girls have for home-making work in the schools. And then I remember the story of the English clergyman who went to a pastorate and preached every Sunday on the same text. He preached that year and the next and the next and the next upon the same text, and finally his congregation concluded they could stand it no longer, so they went to their bishop and said: "Mr. So-and-so has preached every Sunday on the same text for years. You will have to send us another man." The bishop replied, "Well, I am very sorry to hear you do not like this man I sent to you. What is the text he has preached on all these Sundays?" Each man looked at the other and one said, "I can not repeat it exactly," and another said, "I can't remember, but it is the same text though," and so all around the group. Then the bishop said, "Go home until you learn that text, and do not come to me again until you know it so thoroughly that you will remember it wherever you are placed." And so I think the women of Illinois who come year after year to you, talking for your girls—for the girls of Illinois come closer to the hearts of the fathers and mothers than the boys, for the boys stand up in their own strength—need to know that they will have no fear but that they can trust the men of Illinois to give the girls all that is needed. Some day when the question will come about the building suitable for these girls so that they can learn what is so vital to them, there will be no question in your minds whether you will give it. There is plenty of room in Illinois for the material of home-making. The room is so big that we could not bound it by saying it is eight thousand miles deep and two hundred miles wide and four hundred miles long, and during all the years we shall live in Illinois that matter of home-making and the profession of house keeping will with us reach clear to the stars.

Here Mrs. Carter, as President of the Illinois Association of Domestic Science, announced a meeting of said association at the Methodist Episcopal church in Princeton, to be held on Wednesday afternoon to complete the organization of said association and appointed as committees the following persons:

On Constitution—Mrs. Margaret Trimble, Princeton, Illinois; Mrs. Fell, of Edgar, and Mrs. Beal, of Mt. Vernon.

On Resolutions—Mrs. Mary Carriell, Mrs. Henry M. Dunlap, of Savoy, and Mrs. Cauffman, of Sangamon.

On Course of Reading—Mrs. S. Noble King, of Bloomington, Mrs. Emma S. Lovejoy, of Princeton, and Mrs. Nellie S. Kedzie, of Peoria.

Which three committees were requested to be ready with their respective reports on Wednesday afternoon.

EVENING SESSION.

The convention met at 7:30 o'clock p. m., pursuant to adjournment, Prof. Eugene Davenport, Dean of the College of Agriculture, Champaign, Ill., presiding as chairman.

The Chairman: President Moore has an announcement.

President Moore: The chair will appoint a committee on resolutions: Mr. Gale, Prof. Davenport, Mr. Grout, Mr. Rankin and Mr. Curtis.

Prof. Davenport assumed the chair, and after a violin solo by Mr. Ralph Brokaw of Princeton, Illinois, made the following remarks:

We have lost from the earth this winter the three greatest friends agriculture has ever known. Why it is that these three giants should have been taken from us, only He knows who doeth all things well. I refer, of course, to Senator Morrill, the first man in the thousands of years the world has stood, who undertook to legislate in favor of agricultural education. I refer again to Mark Wentworth Dunham, the greatest breeder the world has ever produced. And I refer again, last and greatest, to our own personal friend, Prof. Turner, whose daughter spoke to you this afternoon.

It is fitting, perhaps, at this time, considering all the circumstances, that a few moments be spent in reviewing the work of these two men—Senator Morrill and Prof. Turner. Something of its inspiration, something of the laws that were passed, something of the obligations that came to the states, and something of the way these obligations have been met and discharged. This is a kind of campaign winter for agriculture in Illinois, and for that matter, all over the country. I have never known a time when so many letters came asking about this method, when so many people, rich and poor, high and low, farmers and others, are coming to believe in the advantages of higher education among the farming people.

Strange it is that more than forty years has elapsed since the first efforts of Prof. Turner before the movement he did so much to establish has become actually published. Those of you who had the privilege of knowing this great man, have heard him tell, of course, of his stories of labor in behalf of agricultural education. He never forgot to tell how, after his bill had passed both houses of Congress, that good old bachelor, James Buchanan, vetoed it. And how, after it came again before Congress, another old friend of his, Abraham Lincoln, signed the bill. And having put in motion the wheels that would bring it about, it was in Illinois they found on the part of good people, great lack of knowledge about the legislature. But the ideas that were put into this early work brought the money that had come to the different states by virtue of the enactment of certain laws. True, there had been some attempt in a wandering way, among some of the states—the first was Michigan—to establish an agricultural school, but little came of it. The ideas were simply Prof. Turner's carried over and put in force in that state. He said, "We have provided public education in the common branches for all the people. We have colleges for the wealthy, but we have no means by which the sons and daughters of the common people—the artisans of the country—can secure their higher education, except at a tremendous cost of time. He called it his idea for the development of the industrial people and the higher education of those who labor. I will read a little of the first bill that passed Congress in 1862 and was approved by Lincoln.

This was a big donation of public land to the several states and territories who may provide colleges for the benefit of agriculture and the mechanical arts. After specifying that each state should have the public lands, 30,000 acres of wild land for every congressman, it went on to say, when these lands are sold, the interest shall be inviolably appropriated by each state who shall claim the benefits of this act, to the dominant support and maintenance of at least one college where the leading object, without excluding other scientific studies, to teach some branches pertaining to agriculture and the mechanical arts, in such manner as the legislature of the state may prescribe in order to promote the liberal education of the industrial classes of the several pursuits and professions in life. This is the effect of the first act for the higher education of people who labor. The only amendments made to this bill before it passed, are those including military tactics. This bill was passed in the early days of the war when everyone was thinking about the army.

Senator Morrill said, in support of this bill, "If you pass it, you will increase the productive capacity of this country. If you pass this bill you will insure that there will never be an unfortunate peasantry on the lands of the United States." He said, "If you pass this bill you will insure that the ballot will always be safe in the hands of the common people. You will insure that the country will be a great producing country, always able to compete with the markets of the world."

One more thought on this bill. No portion of said funds nor of the interest thereon shall be applied directly or indirectly under any pretense whatever, to the purchase, erection, preservation of a building, or part of any building or buildings. Further, the state obligates itself that it shall supply the necessary lands and building for the establishment of these schools. Under this law, every state in the Union has established a college of some sort—a few agricultural colleges—a good many of the states establishing colleges for agriculture and the mechanical arts combined, and in almost every instance where this was done, the mechanical business ran away with the other, for after the war closed, inventive genius ran high and there was great demand in the shops, and little demand for farm labor. Strange as it may seem, it is yet true that from that day until now, every time the trustees of the University of Illinois have asked for a building to accommodate the mechanical side of this bill it has been granted. Every time, however, the trustees have asked the Legislature to provide a building for a college of agriculture—the other part of the act—the State has neglected to do it. Three times, within six years they have been asked and urged to establish a college of agriculture as they had the other under the original bill.

This much then for the first act under which each state in the United States received money from the sale of these lands—money which must go for instruction and not for a building. Affairs dragged along from 1862 to 1887, when Representative Hatch of Missouri said it was very evident that we had not enough agriculturists to make a teachable science of agriculture. He was stirred up by the investigations of the laws of England, by the work that was being done by German chemists. In 1887 was passed what is commonly known among us as the Hatch act. This reads, an act to establish Agricultural Experiment Stations with the colleges established in the several states under the provisions of an act approved July 2, 1862. This act provides that \$15,000 in money shall go to each of the states each year for investigation only. He says it shall be the duty of these experiment stations to conduct original researches and conduct experiments upon diseases, etc., and the remedies, etc. It does permit that these funds shall be used for the purposes of instruction to the young. It is not to teach what is already known, but to discover what is unknown. Notice the peculiarity in this act—that mechanical interests are not mentioned. In the land grant act the mechanical and agricultural stood side by side, in the latter the mechanical part is left out and it relates only to agriculture.

So twice the government of the United States has intervened in behalf of agriculture. First for instruction and second for experimentation. Many states have received land in the shape of script; much of this script was sold at fifty cents an acre, and in 1890, almost thirty years after the first act that I

read, the same Senator Morrill introduced and passed the act which we call the act of 1890, or the second Morrill bill. This act is entitled, an act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanical arts that have been established under an act of Congress approved July 2nd, 1862. There has been and is hereby annually appropriated out of any money in the treasury not otherwise appropriated, for a more complete endowment and maintenance of colleges for the benefit of agriculture and the mechanical arts, now established, for the year ending June 30, 1890, and an annual increase for the amount of such appropriation thereafter for ten years by an additional sum of \$1,000 after the preceding year, the annual amount to be paid to each and every state, to be \$25,000 to be applied only to instruction in agriculture, the mechanical arts, the English language and the various branches of mathematical, physiological and natural sciences, the special requirements of their industry in life. This act also provides that no portion shall be applied to the building.

These are the three efforts to establish agriculture in this country, to be well taught and one to insure that we shall now have something to teach. Secretary Wilson said this fall in Washington they could cross the water and we have schools for teaching agriculture. They are places where the boys go to learn how to milk, and how to make butter, but said he, they say to me no country, no nation has ever systematically organized the ordinary machinery you have here, first for the advance of agriculture and second for instruction; in those respects we lead the world.

Now the point of the whole matter is this. In those states where these bills were accepted for face value, and where buildings were early provided, both for the college of mechanical arts and for those of agriculture, we have strong schools of both kinds. I could name them if I should take the time. There are states where the colleges of agriculture are hardly worth mentioning. They have not availed themselves of the benefit of these acts. Illinois, I am bound to say, is about the last of the great states to make a move. We are led by no less than eighteen states in the matter of getting ready to teach agriculture. There is no state in America that under these two acts have established as strong an engineering college as the one in Illinois. We have at Champaign the best engineering school in America and I am proud of it. I wish I could say there is not any institution in America as good as that is. We have there the best school of architecture west of the Alleghany mountains. These people have \$2,000,000 worth of buildings, and they will need more soon. But we have no building for agriculture. Illinois has forgotten it.

I have taken time to go over this matter because there are so many questions coming in in this day about the whole subject. If I did not trespass upon your time the University would not be represented here tonight. It would be unpardonable in me, while we are on this matter, of our agricultural building if I did not say what I have omitted to say and speak of the splendid work that has been carried on all this winter by this State Farmers' Institute. Last fall a committee was appointed by the directors of the State Farmers' Institute to urge upon the people and go before them and show them the need for this building. This committee was headed by Mr. King, of Bloomington.

Mr. Davenport: We will now continue the program of the evening, "How can Agricultural Life be made Attractive," by Miss Lillian Ford, of Princeton, who became interested in this subject while taking a course under Prof. Zigman. We are always glad to hear from people how to make our lives attractive.

Miss Ford addressed the convention as follows:

HOW CAN AGRICULTURAL LIFE BE MADE ATTRACTIVE?

How can agricultural life be made attractive? How can the pursuit of agriculture, with its attendant surroundings be made attractive? Where lies the want to be met? With the pursuit or with the surroundings? In the

stimulation, in the use of his mental powers, be they great or small, be they wide or narrow, dwells man's greatest and most enduring pleasures, and in making this statement, I do not forget that the brain often has its happiest, best expression through the skilled hand. This fact in large measure, governs the choice of a life occupation, its requirements being the question to which the mental, supported by the physical power of man, is the answer.

The occupation of many a man, however, is not a matter of inclination—rather of combined circumstances over which he has, or believes he has no control. If then his bread winning do not touch or absorb the dominant element of the mental, he will seek to satisfy its craving for expression by granting it activity during the hours unclaimed by bread winning. The field of its activity must be determined in large degree by the conditions which accompany his occupation. If the field be sufficient, the man is satisfied; if insufficient, one of three results follows: the power, after repeated struggles, dies, and with it dies ambition—that motive force for good or evil accomplishment, that force, the possession of which lifts man nearer the land of gods, the lack of which lessens the distance between the human and the animal—or it lives to torment and haunt him into discontent by a constant rattle of its prison chains; or growing mighty, compels him to break the bonds which hold him to uncongenial surroundings and to seek others in which the dominant mental force of his nature may find play.

Agriculture as an occupation, requires a greater expenditure of physical than of mental energy, leaving, according to the man a greater or less residue of unapplied brain power. Agriculture deals largely with the inanimate and dumb animate; it were a direct inference that the human animate draws but little upon that part of the mind in which it would find response; and that just here the unapplied brain power would be found in largest measures; that in the human animate lies its field for action.

Do the surroundings accompanying the average agricultural life furnish such a field? No!

To attract is to draw toward the conditions in which the wants of his nature, mental as well as physical, can be fully met: not toward those in which they must many of them remain unsatisfied. Hence, through the unsatisfied demands for human intercourse and all the development which it brings, the lack of attraction in agricultural life.

Good roads go far toward cancelling this lack; they would render visits to neighbors and business in town not a matter of season or of weather, but a matter of inclination or decision. Through the mail carrier, the interests of the mercantile, the manufacturing and the social world, would roll each evening over this same road like a refreshing wave from the ocean of human life beyond, and breaking at the feet of the agriculturist, claim him too as its own; and he would rejoice in the adoption.

Good roads would bring the school house and the church nearer the home; being nearer, they would be better patronized; better patronized, their importance would increase and demand recognition in better and more extensive instruction than is now furnished in country districts.

I know of more than one farmer who has sold or rented his acres and moved to town, that his children might have better educational and social privileges. Not having money enough to "keep" them away from home, or being unwilling to subject their young and untried judgment to worldly wrangle beyond home shelter, his only alternative was to change the surroundings of home. And the unfortunate side of the situation exists in the fact that the man with such an ambition, is just the man which a country locality can not afford to lose; just the kind of man which it needs.

Roads first, then the telephone. They clasp hands. The telephone, for the time, like a sponge across a slate, wipes out good as well as bad miles and puts one "next door" to the "doctor, lawyer, merchant, chief," as we used to say when we were children; chief of the police, or chief of the fire department. And Whiz! over the good roads whirl the physician and the fire engine, the filled order from the village grocer and the friend, who, on the spur of the moment, has been invited to tea.

All this will the telephone accomplish, not to mention the masculine opportunities to "see a man" without the effort of hitching, and the satisfaction of the feminine proclivity to call. Alas! I can not represent the bonnet or the gown; so there is still a reason why Mr. Edison should continue to breathe.

Variety of human intercourse, including healthful amusements to off-set the monotony of daily physical labor, follows closely upon the heels of good roads and telephone connection. The next demand is for good schools and good churches.

The second point to be considered with the first, is less burden to each pair of shoulders; else the advantage accruing from improved travel can not be fully enjoyed. More help should be employed, during the busy season, that the hours may be shortened. Especially is this true in regard to the women, who are on their feet from early morn 'til dusk, driven by the indoor, and not infrequently outdoor, tasks of agricultural life; and candle light is but a lesser sun to usher in a new day of maternal or other duties. The mending basket, flanked by the chopping tray and peeling knife are an imperious, never-failing source of evening employment to a farmer's wife. Where is her time to read? To visit? And if she should upon rare occasions wring such time from the many claims upon her attention, how can she obtain its benefits with muscles too tired to make one extra effort; with brain too weary to follow connectedly any train of thought outside the daily round of her tasks.

More help for the women, and if maids can not be found, engage deft men instead.

When the women of the farms can more frequently mingle themselves with the women of the town, thus enlarging the horizon of their interests and making the oft quoted prayer, "God bless me and my wife, my son John and his wife, us four and no more," less loudly heard from silent lips, not only will intelligent women look more favorably upon and be more willing to share the fortunes of an agricultural life, and thus help lift it to a higher social plane, but many of the attractions of home town life will find their doubles in the country.

The cherished parlor will become an evening sitting room; the best dishes will oftener see the best linen. Small inexpensive brightness, in the way of pictures and magazines will lie in wait to catch and please the eye and mind; little politenesses of manner and speech which are other names for little kindnesses, will take up their abode where before big kindnesses have tried to cover everything.

The effect of this on the men? The man begins to regard his house not a stop-over place from day to day, but a refuge, a rest, a pleasure to be indulged in when hours of labor shall be suspended. And in this home is a mind not too over weary to respond to his craving for companionship, whether it be a game of checkers, chess or cards, a discussion of the political outlook, a reading of some delightful book, a bit of study or harmless gossip; perhaps an "outing." And in this mental living together, the old dear relations of the lover days, strained hard, because of the forced neglect, springing from conditions which give it birth, are renewed, and with them, for both husband and wife, the best happiness of all.

In this problem of agricultural life, the master and mistress are not the only centers requiring consideration. The farm hand has a heavy claim upon our attention. On him, and the quality of his service, the financial prosperity of the agriculturalist largely depends.

There is a floating mass of farm labor which, could it be anchored, would improve in quality and become of greater value to a community. I allude to the extra help added during the summer and dropped during the winter months.

Were it possible to support a winter industry in connection with farm life, a portion, at least, of this labor could be retained, and for this portion, the evils which accompany an unsettled or roving existence, would be avoided, and the benefits springing from citizenship and from longer and closer connection between master and man would take form.

An adult winter school for manual and mental training would accommodate those whose ambition leads them to seize each opportunity for self culture, and would furnish means by which the facts of scientific farming through instruction and free discussion, could be more widely diffused.

How can agricultural life be made attractive? Through good roads, telephone connection, good schools, working churches, healthful amusements, shortened hours of labor, winter industries and adult schools.

Mr. Davenport: In the absence of Hon. Alfred Bayliss, detained on account of sickness, his address will be printed in its regular order in the annual report, and in his place Mr. L. H. Kerrick, of Bloomington, will address us on "The Country and Town."

Address by Alfred Bayliss, State Superintendent of Public Instruction.

"THE FARMERS' COLLEGE."

That "this is an age of progress" has become a hackneyed saying. Everybody concedes that the world, socially, is moving very fast. Button-hole the first man you meet tomorrow morning and say, "Social changes have never before been so rapid nor radical as now. There has been more change in the social condition of man since Washington was inaugurated, than in all the preceding years since the invasion of Great Britain by Julius Cæsar. The Father of his Country used wooden plows. Why, when Washington was inaugurated the population of the United States was less than that of Illinois today," and before you get into the merits of your story, he will hand you his card with "This is my busy day" on it.

We are moving, and everybody admits it. When I "kept" a "country school" half the farmers still cradled their wheat, and half the people in town burned candles. The self-binder was smiled at as the "figment of a dream" by the sagacious farmer with whom I "boarded around" in the winter and plowed corn in the summer. He simply said: "It can't be did," you know. I didn't think it could, either, but one of my best boys is now over in the Czar's country unloading the "McCormick" twine binder at a great rate.

When I kept a "country school" men said the railroad to the Pacific coast wouldn't be built because it couldn't be, and wouldn't pay when it was. The "Great American Desert" was still on our maps. The Atlantic cable, the Gatling gun, dynamite, the barbed wire fence, the air brake, Bessemer steel, cable cars, electric motors, electric lights, gas engines, enameled sheet iron (kitchen ware), writing machines, sewing machines, bicycles, passenger elevators, telephones, were yet either to be invented, or to be brought into general use. Kerosene oil had been struck, but Rockefeller hadn't found it yet.

Even after I discovered that my talents were too lustrous to be hidden under a country half bushel, for that's about what most of your country school houses are, I had a lot to learn. As late as when I was a teacher of physics in a "high" school, I reached the "sound" conclusion that the telephone would never be developed into a practical instrument, although it certainly did have great scientific interest, etc., etc.

When I kept a "country school" one-sixth of the people of the United States lived in cities. Now it is thought that one-third of them do. And this increasing movement to the cities is to me the most significant single fact in the complex of forces which we call civilization. It may be all right. There are those who profess to believe that it is, and the great tide now pouring from country to city will turn upon itself. It is very doubtful. Those who are swallowed up by the city are never disgorged from the vortex; there is no escape.

I met an old friend on the train the other day. He was returning with his wife from a visit to old "Lancaster" county, where they came from. Had had a good time, and was going home to think it over, and talk it over. He is a rich farmer. Has hundreds of broad acres, a great barn into which you could haul the district school house, and a good house, etc., etc.

"Well," I said, "I suppose the boys have been running the farm?" "No," said, "they are not at home."

"How's that?"

"Well, John, he's practicing law down in Henry county, doin' pretty well, too, and Henry, he's a dentist. Hung out his shingle in Wisconsin last April, and wrote me that he cleared nearly a hundred dollars the first month."

"Well, where's Jim?"

"Oh, he's at the school of pharmacy in Chicago."

"And who's on the farm?"

"Oh, us two, and the hired help."

You know that man, don't you? His name is "Legion,"

I saw he felt the situation a little, although he was proud of his boys, as he had a right to be, and I imagined he was trying to change the subject when he asked what I thought of McKinley? But I was not quite through, so I said: "He's doing well—greatest president since Lincoln, hasn't made a single mistake, right on every proposition; all the people, without regard to politics, have implicit confidence in McKinley—and Dewey. How's the school this winter?"

"This man has a railroad station, a school-house, and a graveyard on his farm, and they used to be very proud of the fine large school (not school-house). "Oh, I hardly know. We had six scholars last winter, but one of the little Jones girls died not long ago. I don't think of any more to come in."

Now, this is the condition. Society is moving very fast. The city school, for reasons I need not stop to capitulate, is keeping up with the procession. History is repeating itself, only more so. The country is reinforcing and regenerating the city with its best blood. The movement is not new, but it is accelerated. The elements which destroy the population of cities will operate in the future as in the past.

The proposition is, "What are we going to do to keep the country pure, intelligent, and strong enough to reinforce the agencies which make for righteousness in the cities?" and second, "What are we going to do by way of fair play for the half of our children who are going to stay on the farm, and live the most natural, independent and happy life conceivable, and continue to be the backbone of the nation?"

It is for the children included in the second part of the proposition that I desire to plead.

PROPOSITIONS.

I. An up-to-date school requires first, a good school house. Second, modern text books. Third, reasonably long terms of school. Fourth, trained teachers, and fifth, expert supervision.

II. "Those who live in the field are as deserving of education as those who dwell beside the asphalt." That is to say,

- (a) A country school is entitled to as good a school-house as a city school.
- (b) Also to as much school.
- (c) Also to as good teachers.
- (d) Also to as careful supervision.
- (e) Also to as good a library and other accessories.

III. First class work is worth as much, cost of living duly considered, ten miles from town, as it is in the heart of the city.

IV. It is economy to pay a public servant well, and then see that he does his work.

V. Adequate expert supervision is impossible under prevailing conditions in Illinois.

VI. Correlation and conservation of energy demand good schools, good roads, cheap telephonic communication, country trolley lines, and free mail delivery.

Just as I have this much said, and am thinking of taking these propositions seriatim, along comes a letter from my friend, the county superintendent of this county (LaSalle) in which he said he had some "advice" bottled up which he thought he would better pour out in the interest of his own peace of mind. He said:

"I am glad you are going to talk for the country schools.

"Please emphasize—Regular work, Close Supervision by Superintendent, and Libraries.

"Reach the consciences of the farmers on the matter of qualified teachers. Pay teachers and then demand professional skill. Demand attendance at the normal school."

Well, I wish I had the wit and words and worth, action and utterance, and all the graces of oratory which such a theme would justify, I would like to turn them loose upon you for seven or eight hours. As it is, I can only hope to touch a point here and there, that may, perhaps, be in harmony with some thought of your own, and, at least, do no harm.

And his letter, you see, is only another statement of the substance of my propositions. So we can go in anywhere, as Sheridan said to the colonel, "There's beautiful fighting along the whole line."

What about this proposal to "demand attendance at normal school?" I said awhile ago the world is moving and we do not give the country schools a chance to keep up with the procession.

Let us see. The first school I taught was a country school. That was a long time ago, longer than you might guess. Let me tell you how I got it and why. I was lately home from the war (August, 1865). I resumed where I stopped in 1863. My savings kept me till towards the last of November, when I discovered that I had \$3.29 left. As my style of living required an outlay of \$3.50 per week, you can see the situation. I couldn't do anything else, so I had to teach (q. e. d.) I applied to the nearest school district; "no teacher wanted;" to the next, and the next, with the same result, until I had tramped 30 miles. The first untaken school I found, I engaged, and began work the next Monday morning. (I should like to tell you all about that school, but you wouldn't believe it. I learned more that winter than I learned in two years in the army). The next winter I got my school precisely in the same way, except that I planned better, and got the first one I inquired after.

What of it? you say. Only this, brethren, we are employing teachers for the country school just that way today, a whole generation later. It would be no more absurd to cut your grain next summer with a sickle. The law of Illinois permits the county superintendent to license children to teach; their parents give them permission, or urge them to it, and you farmers who are forever kicking against the trusts and monopolies and the sharp practices of lawyers are green enough to hire them.

You wouldn't hire a man who admitted that he couldn't saw a board straight, or drive a nail into one without splitting it, to build you a corn crib, and if you knew he had never sawed boards or driven nails, you wouldn't let him try on your material unless he had some smoother story than "Well, how'm I going to get experience if you don't let me begin?" "No, I never milked a cow, but I think I can manage it all right. Have to learn at somebody's expense. Never harnessed a horse, but I can plow all right." Would you hire him?

Do you know what they do in more than half the cities? They refuse to consider anybody who is not pretty nearly old enough to teach school, and who has not practiced upon some other schools—presumably and generally country schools.

Yes, I wish I could reach the consciences of the farmers on this matter of qualified teachers, for that is practically the Alpha and Omega of the whole matter. But we can't get them, we are told. The supply is insufficient.

No, you can't get them. The supply does not equal the demand. Nor will it ever until the demand exists. Demand must always precede supply. Suppose you wanted to acquire a herd of beef cattle and advertised for Short-horns. How long would it take you to get a beef producing herd if you accepted scrubs and Jerseys and Holsteins and Ayreshires, and everything that came along on the plea that that particular seller didn't have any Short-horn stock just now, and had to begin selling cattle sometime anyhow, and that little Jersey there would make a good beef anyhow, if you fed her enough.

There was once a school director who wanted to hire a teacher. The candidates came thick and fast. Among them was one who said: I am a good man. I belong to the orthodox church, I don't drink, I don't swear, I am neat and tidy in person and attire. I don't play whist, nor reverse my cuffs, nor pay my bills, and my ancestor's were fellow-countrymen of yours."

"Well, young man. I can overlook most of that if you can give me any evidence that you know how to teach."

There is a difficulty, but it is not insurmountable. We are hereafter to keep in operation four great State Normal Schools, two of which call themselves "universities," at a yearly expense of about \$200,000, and the country schools have a just claim upon them. They must be kept open all, or nearly all the year round. Until the farmer has the wit, or business sagacity, or patriotism to see to it that his children have as good high school facilities as the children of the carpenter, or clerk, or doctor, or drayman, or blacksmith or banker, who happen to live in town, these normal schools must offer courses, especially in the summer, that will be adapted to the wants of the farmer boy and girl who can attend only part of the year at a time.

The distinguished president of our oldest normal school bemoans the fact that but 7 per cent of his students are able to take the entire course of study. In trying to account for this he divided the students in three classes.

(a) Graduates of the best high schools, admitted to a two year course, who are in demand in their home schools after a single year of normal training.

(b) Graduates of high schools of lower grades, who are admitted to a three year course, and who average about a year and a half. And

(c) A class composed of those who have received nearly all their training in district schools. He says of this class: "They are older than either of the groups, and while inferior to them in scholarship, are harder workers, more serious in disposition, and more willing to endure the comparative inconveniences of country life. * * * A highly respectable percentage of them take high rank in their classes, and in the work of the practice school. They understand country ways, and are satisfied with country living, and get on well with country people. Many of them 'farm' through the long vacation and teach the district school during the fall and winter. They become resident teachers, continuing their services in the same locality for several years. It is to be regretted," adds Mr. Cook, "that there are not more of this class of teachers," and before we can have the best kind of schools in the country the farmers will have to see to it that there are more.

You needn't believe this, fellow farmers, unless you want to. It's the eternal truth, but I don't know that it's any of my business whether you so regard it. You can't have schools without teachers, and boys and girls who are too young to vote are not teachers by grace of a high school diploma, and a second grade certificate. and they do not always become such merely by being turned loose in a school house with a number of unassorted children and a blackboard. Even when this is supplemented by a week in the summer institute and a visit of two hours from the county superintendent, the result is not always a teacher. My duty is done when I remind you of these facts. You are the fellows to "walk the floor."

MUST HAVE BETTER SCHOOL HOUSES.

If we are to have better schools in the country we must have better school houses.

Garfield's proposition to the effect that a log in the woods, with Mark Hopkins, teacher, on one end, and James Abram Garfield, student, on the other, constituted a school, only applies to Hopkins and Garfield, and combinations of that kind.

Here in Illinois we must have pleasant, roomy, convenient and sanitary country school houses, and I can't for my life see any reason why they should not be as well adapted for their purpose, in all respects, and even as attractive architecturally, as they are fast coming to be in the cities. Think of the most enterprising and prosperous city in your congressional district. Now think of the finest building in it. Your mental image is a school house. Now think of three rural school districts—the first three that come to mind. In two of them it has been alternately too hot and too cold every day this winter, and in one of them drafts of cold air through cracks in the floor or poor walls are threatening the health just as those filthy outhouses are defiling the morals of the children.

We have a law requiring that children be taught, and taught again the chemical effects of a certain poison on the various parts or organs of the body. That law goes, and some of the teachers, as well as most of the book factories, have risen to its requirements in a way. But there is a whole body hygiene of equal importance, the practical teaching of which involves a properly built and properly arranged school house.

Architecturally, the school house should exhibit the taste, and to some extent, the aspiration of the neighborhood. It should be better than the best dwelling house. (But there are those who wouldn't exchange their best barns for the school house in their district.) It should be lighted from the right direction; have the teacher's desk in the right place; have ample air and floor space; it should have cloak rooms for boys and girls, entered from the school-room, and be furnished with lavatories opening into properly constructed closets, accessible in no other way. It should be properly ventilated, and, when possible, have a dry, clean and warm cellar. It should have abundant book-cases, and cabinets and reading tables. A portion of the ground should be properly ornamented, and altogether the house and grounds should be the pride of the community which supports them.

I said that, under existing conditions, adequate supervision is not possible. It is now many years since Dr. Bateman proclaimed that "the county superintendency is the right arm of our school system; its strongest living element of power; the most closely identified with its future progress and development," and declared that "no more disastrous blow could be aimed at the system than one directed at the life of the superintendency." But the blow was aimed, and for years the county boards held and exercised the power conferred by law to tie the "right arm" of the school system behind it, and we are now convalescing from the disaster which followed. But, you say, we have the county superintendent now, and why then is adequate supervision impossible?

Let me ask your attention to the conditions under which we are attempting it.

Section 1 of article III of the school law provides: "Each congressional township is hereby established a township for school purposes." Section 46 of the same article provides that "Trustees of schools in newly organized townships shall lay off the township into one or more school districts, to suit the wishes or convenience of a majority of the inhabitants of the township, etc."

What has been the result of the operation of this law?

1. There are 11,683 school districts in Illinois, governed by not fewer than 40,000 "directors." This is an average of 115 districts to a superintendent, 46 counties having more than the average number of districts. In these districts in 1896, 4,008 schools were visited but once, 1,085 (861 being rural) not

at all, and the average number of hours spent in each school was three. But few county superintendents in Illinois have assistants. I submit for your consideration, the proposition that under these conditions, adequate supervision of the country school is a physical impossibility.

Why, in little cities like Rockford and Galesburg, and Bloomington and Springfield, in which the average number of teachers is the same, and the superintendent has a supervising principal in each building and can call his teachers together once a week if necessary, it is generally conceded that the superintendent of schools is the busiest man in town if he does his duty. But his work and his problems are not a circumstance to those of the county superintendent, with a like number of teachers.

How can we help it? Well, I think the Farmers' Institute of Illinois, through its Congressional and County Institutes, might help it materially in a year or two if we all put a hand to the plow and turned not backward.

Suppose that, if, instead of laying a township off into one or more districts, the trustees laid it off into one; or since the mischief is already done, suppose the seven or nine districts into which the township is now divided were consolidated, as the law provides may be done under certain conditions, into one. Suppose that outside of the incorporated cities and villages, there was but one board of directors or of education in the township.

1. Could school houses be so located that fewer houses would accommodate more children, and an arrangement be made just as it is in the cities that any child might go to the most convenient school? Or,

2. Could not one of the schools be designated as the place of attendance for the older pupils from all parts of the township, thus saving the waste of energy by seven or nine teachers instructing two or three each in seventh and eighth grade work, when all could be taught so much better by one teacher if brought together?

Why, a letter came to our office the other day, stating that a young teacher, holding a second grade certificate, had lost 23 out of 39 of her pupils, because she had been compelled by her board to attend to the studies of two or three advanced pupils in algebra, general history, etc.

My assistant addressed an institute in Macoupin county last week and talked with two young teachers who had 19 pupils each and all the grades from first to eighth.

A letter came to us not long ago, from the new county superintendent of Grundy county, asking for advice in the following dilemma: A teacher regularly certificated and employed, had no pupils and, therefore, didn't consider it essential that she should keep regular hours. When the superintendent "visited" her school at 2½ p. m. she was not in. "Ought that teacher to be paid?" "If so, why? If not, why not?" Or,

3. Could there not be substituted for the seven or nine partly or wholly unfit places in which the schools are now kept, one building, centrally located, as well adapted to its purposes in all ways, as the building in any city district having the same number of pupils, and a little better, in which should be kept a graded school, with ten, eleven or twelve grades, instead of eight, and in charge of a competent principal. Imagine this county of Bureau so organized. What could not a county superintendent do through his twenty-two principals? Or—

If the advantages of such a modification are not apparent, and townships prefer the less economical prevailing plan for the lower grades, why not take advantage of the provision for a township high school, and establish that in every rural township? Or—

But these are suggestions enough.

The question is, will the farmers of Illinois make their schools as good for their children, as the people of the cities are making the schools for their children? Have you noticed what the educational commission is demanding for Chicago? More high schools, more manual training high schools, and even commercial high schools. That is, the people in the cities demand

schools the training in which shall have a distinct trend in the direction of the probable life work of their children. But the farmers either let their children leave school, or send them to the town schools where the whole atmosphere tends to lead them away from the farm and into other modes of life.

There ought to be, within reach of every farmer's child in this State, a country school that should be as worthy a place on the accredited list of the university as the city schools that now make up that list. It ought to give as good quality of instruction in mathematics, and science, and language and literature as the city high school, but instead of being colored and flavored with the activities of the city, it should have the equally useful, and far more delicious flavor of the soil. There was once, for a short time, such a school in Illinois, just one. If there has ever been a second, I do not know about it. It was kept by the present distinguished superintendent of the State Institution for the Blind at Jacksonville. Its life-time was ten or twelve years, and I have heard it stated, that after it had been in operation a few years, the increased price paid for the butter made in that town would alone pay the taxes of the town. Why, the pupils in that school would have at times one hundred test tubes, with milk from as many cows, at school. If in the same herd of shorthorns, one cow gave milk upon which would rise 6-16 of an inch of cream, and another 36-16 of an inch, which probably went to the butcher first? They found by experiment the temperature at which cream ought to be churned; they got in butter from all over the district, and sent for an expert to test it; they estimated the weights of farm animals, and then verified them; in the study of physics they solved problems concerning the use of 2 and 3-horse eveners, the cooling of milk with ice, the specific gravity of sand, gravel, soil, limestone, and different kinds of wood; in their study of chemistry they learned the constituents of soil, and the functions of each, especially the four essential ones, and something about the different methods of supplying the deficiencies arising from cultivation. They studied food values, horticulture, floriculture, and I know not what else.

While that school lasted its graduates were in constant demand for teachers and were usually engaged months in advance of their graduation.

I do not know why that school was discontinued, unless because it was in advance of its time, or because Providence had other use for the master. But before it is forgotten the Farmers' Institute ought to send him into every county to tell its story that it may serve as a model for the new country school.

I was to speak of the Farmer's College. How can I, having already wearied your patience by these desultory remarks about the farmers' school. I never thought very highly of the man who "kept a school and called it an academy," and I am not going to surpass him by calling our schools "colleges." If there are to be real farmer's colleges in Illinois, the first ought to be developed as part of our great university, and if the farmers will only develop more farmers' schools, the college will take care of itself. It ought to be one aim of this organization to direct more young men to that department of the university—hundreds more every year—in the interest of the foundation industry of this great State. I submit to you that the way to do it is to improve the schools, and that the way to improve them is to re-organize them, give them better teachers, and give the teaching a strong trend in the direction I have indicated.

Do not misunderstand me. I am not arguing that every country boy must necessarily stay upon the farm. That would be as absurd as to insist that every other boy should follow his father's calling. And that sometimes works this way: Said Weary Waggles to Dusty Pete—"However did you come to take to the road; father before you?" D. P. to W. W.—"Yes, Methodist minister; grandfather, a highwayman."

But give the farm boy a fair chance to choose by giving his way of life an even chance. There was a "communication" in one of the city papers, the other day, which alluded to the "stagnation" and "isolation" of the country population, and used the expression "dry rot of the brain which is breaking down the farming population." I thought that was rather picturesque, and

was glad the next day, to see in the same paper, a rather tart reply from somewhere up in Michigan. The writer who claimed to be a granger, described the community in which he lives—nine miles from the nearest railroad or village. He said:

“We have a circulating library, owned by the State, and every three or six months, comes a new section of fifty books. For the last three winters we have had a lecture course of five lectures. We can receive and send mail every day, and during five months of the year, twice a day. A very large proportion of the people are members of a stock telephone company, owned and operated by themselves. Telephones in their houses and communication with Grand Rapids, Lansing and Kalamazoo. Pianos in abundance, and a driving horse and carriage in nearly every family. Nearly every school district in the vicinity has its literary society, in which both parent and children participate and enjoy the music, recitation, reading and debates.”

Now, if the common schools, more of them I mean, some are so now, could be like these, and in every township there could be a higher school like Frank Hall's, in which the relation of science to agriculture could be intelligently taught,—the constituents of plants; the origin, formation, composition and improvement of soils; natural, artificial and concentrated fertilizers; the rotation of crops; the growth of animals; feeding standards, the principles of breeding; the character and composition of dairy products; the best methods of fruit growing;—I do not know enough to make the list complete, but that will do. With such schools in all the great farming counties, more boys would go to the agricultural college, a superior class of men would stay on the farms, the snobs in town would have more respect for the men whose prosperity is the foundation of his own, and what is more, the farmer would come to have what I sometimes think he lacks now, an adequate respect for himself and his avocation.

Who would hold the balance of power in business, in politics, in progress, if Illinois could have two or three generations of such farmers? It is in the power of this organization to produce them, through the agency of the Farmers' College—the improved common school. They say that rural life and occupations do not offer the largest incentive to intellectual life. That the mind needs the stimulus of contact with other minds to rise to its highest levels. It may be that something of that sort is true. But if it does not stir the ambition, country life does what is better; it conduces to clearness and directness of vision, and leads towards sound judgment when it turns away from the more showy ambitions. The inner secrets of nature's laboratories will always remain a mystery. No man may ever develop to the utmost limit the capacity of his soil. But the sweat of the body will be relieved more and more by the sweat of the brain. Every year some new secret will be laid bare, and the triumphs of mind over matter be as remarkable and as frequent as in any other sphere.

We are proud of the fact that the majority of the great men this country has produced came from the farms, but it will be the most serious mistake we can make if we even seem to encourage the idea that success in life is possible only to those who leave them. Food, clothing and shelter are the fundamentals of civilization, and this is an agricultural nation. Intelligent farming is second to no avocation in its demand for brains. We talk of the “learned” professions. Mind is no more the dominant factor in them than in scientific agriculture. Our young men must be made to know and feel this. The way to do it is to improve country homes, schools, and social life. Of the factors which make for this improvement the school is not the least.

Let me repeat that the taxing unit for school purposes should be so changed, that as good schools, having as well paid teachers, as good libraries, as good debating clubs, as much architectural beauty, as beautiful grounds can be provided in rural as in urban communities, and that these schools should be colored with those things which will bring the farmer's boys and girls into sympathetic knowledge of their environment and its possibilities, and lead them up and out of the atmosphere of mere drudgery into the sunlight of aspiration and hope,—in plain words, to give them what they do not now have, a fair chance.

Mr. L. H. Kerrick of Bloomington, address on

THE FARM AND THE TOWN.

Thirty-five years ago and thereabout, the literary clubs whose meetings I had the privilege of attending, frequently engaged in the discussion of that great question, "Which is preferable, city or country life?"

Our discussions were not only frequent but prolonged and marked by great earnestness and ability, as it then seemed to me.

And yet we failed to argue the matter out to a finish and a decision. I recall our failure now with deep regret, a kind of regret close verging on remorse. We ought to have settled the matter then; indeed it should have been settled long before; the world would have been saved a deal of trouble if it had been.

Mankind throughout christendom for want of a correct, final and authoritative decision of the question to halt him, has been marching, marching in ever increasing numbers and with ever accelerated pace from the country to the city.

I feel that I am in part to blame for it on account of my share in that failure of my debating club to settle the question and settle it aright when we had it in hand.

I have longed to retrieve that lost opportunity of serving my fellow men. I believe my time has come, here and now to make the attempt.

It is not natural that men and women should prefer the life of the city to the life of the country. Man's Maker knew his nature, surely. He knew what was good for a man and what a man was good for; and He put the man where he would do the most good, and that was to farming. The first work that was done on the earth, after the creation, was to plant a garden. It was planted by God's own hand. "The Lord God planted a garden eastward in Eden, and there He put the man whom He had formed, to dress it and to keep it." Later the man was sent forth from Eden to till the ground from whence he was taken. If, to the sacred record as it is, had been added the express command, Go forth, O man, work out your earthly probation on the agricultural line, the divine intention would have scarcely been plainer. The earth was made to be farmed and man was made and sent to farm it. Whenever and wherever he has staid close with his job he has prospered; whenever and wherever he has left it very far, he has been, by so far, less prosperous; whenever and wherever he has left it altogether he has made a dead failure. I am about ready to say, I believe, that all the powers and faculties with which men are endowed—mental, moral and physical, have found, from Eden to this day, and will ever find their highest and most perfect adaption to the conditions of life in the open country, tilling the ground for a living and a business. Yet strange to say, the majority of men and women would rather live anywhere else than in the country, and they would do almost anything under the sun rather than till the ground for a living. Sometime, somewhere, somehow, the sons of Adam acquired a proneness, all put unconquerable, to pile themselves up in cities and towns. Where they got such a bent or how they got it, or when they got it, I do not know; nobody knows. That they did get it, that they got it early, that they got it bad, that they have had it all along, that they have it now and are getting it worse, everybody knows. Far back, very far, close down to the horizon of history, we can see the people coming out from the East; they traveled until they arrived at a plain in the land of Shinar. They had this city fever then; a dangerous form of it in an advanced stage. "Go to," they said. "let us build a city and a tower whose top may reach unto heaven, lest we be scattered abroad upon the face of the whole earth;" and they burned a lot of uncommonly hard brick and went at it. A city and a tower to heaven—as if they would mount to the very court of the Eternal, and there demand some change of laws which would enable them all to go to town and live there comfortably together forever! So fixed and strong was their determination to do the thing they had imagined to do, it required a miracle to restrain them. As it was in that far off day, so it has been and is now everywhere, men are possessed by an unreasoning propensity to go to town to live and to build towns, if not as high as the sky, still just as high and as wide as they can possibly build them. Nobody's town in all the world is big enough.

In our time we are witnessing, especially in the United States and in Europe, an extraordinary, an unparalleled movement in population from the land to the town. It would not be far from the mark to say that half the people of Europe are now massed in the cities and larger towns. And still the unhealthy growth of European cities continues at a desperate rate. In the United States we are following fast after. Our first census, taken in 1790, showed but three per cent of our population in cities and towns. Our last census, taken in 1890, showed thirty per cent, not reckoning towns of less than 8,000 inhabitants. If a count could be had at this time, it is quite probable it would show something like forty per cent; and it is certain at the rate we are going, that another decade or two will carry us well beyond the fifty per cent mark. Many causes have conspired to bring this all about. For lack of time I can only mention a few of those which lie in plain view. In the first place the lands of the United States are generally fertile—the climate favorable to agriculture. For a long series of years, excepting the last eight or ten, agricultural products have brought remunerative prices; all of which, together with intelligent husbandry, made our farmers well-to-do. They were able to gratify the prevailing propensity to go to town; and they have been gratifying that propensity on a huge scale. In more recent years farm products have not been bringing remunerative prices, and here, for an opposite reason, another big batch of farmers have gone to town; thinking their labors on the farm were not fairly remunerated, they have left their places or rented them to younger, more hopeful and more enthusiastic men. But in addition to the general cause, there have been other special forces at work in the United States the past twenty years accelerating this movement toward the town. The great era of railroad and steamship construction lies parallel with this era of great city growth. General and highly improved methods of travel and transportation have mobilized the people, so to speak, body and mind, and mobilized almost everything else, in fact, that is movable. The necessary sequel to this has been larger and larger city growth. While it is true that all roads which lead to town lead also out of town, still it is far easier to travel them going toward town than it is coming from the town.

The era of inventions, and the era of greatest growth of manufacture and mechanic arts are also contemporaneous with this era of great city growth. I need not stop to explain how these have powerfully contributed to building and populating cities.

The era of greatest development of schools, both public and private, lies exactly parallel with this era of over city growth; and it must be said because it is true, that the schools have been among the most powerful agencies which have been at work drawing the people from the farm to the town. I do not say that those schools in which are taught, what we call the common branches, have been responsible to any considerable degree for turning the minds of our youth from the farm to the town. But it is true that all schools of higher grade, all those which may be properly designated as the foot ball grades, have been among the most potent agencies for drawing young people off the land and leaving them in the city. I lately visited a great state university, of a central west state; there were sixteen hundred students there; I learned that nearly four-fifths of these came from the farms; in answer to my question, "how many return to the farm when through school," it was replied, very few. The president of this same university which I visited stated in a public address given the time of my visit, that there were in the ten state universities of the ten north central states, excluding the two Dakotas, more than sixteen thousand students pursuing college and professional courses. Suppose that nearly four-fifths of all these come from the farm, and that very few return to the farm when through school; then you will get a measure from this single class of schools by which you can estimate the vast extent to which schools of higher grade are drawing young people from the land to the town. From careful observation I am ready to state that of all the young men and young women who come from the farm to the town to attend schools of higher grade, and who attend such schools for two or three years or more, a very small per cent ever return voluntarily to the farm.

I must warn you against construing anything I have said as being against higher education, but I do not for a moment admit that everything that claims to be higher education is higher education. I have not before, even used the word "education." I have only been speaking of the simple, plain fact, that higher grade schools are drawing young people from the land to the town. I am in favor of higher education. I have been, I am now, and always will be. Education is the greatest thing in the world. The higher we can carry it the better, and we can never carry it too high. When education is carried high enough it will cease to draw people from farming—the first and greatest occupation in which men can engage. I have only been speaking of the schools and what they are now doing; and not of education. Schooling by itself is not education. A good school is one of the greatest helps to education, but schooling is a help only, it is not all of education. Too much schooling may even stand in the way of education. It is possible for a man to be a great scholar, and yet not be an educated man. The pursuit of a useful trade or occupation is one of the greatest means of education. Schooling and work together educate people. Since farming is the most important business in which people can engage, I count farming one of the greatest educational agencies. A man who can successfully carry on a good farm, is a pretty well educated man; he must be. When the school usurps the whole field of education, it fails. Something is lacking, something is wrong with the school when it is drawing the people from the farms. The great problem which the school teachers have to solve, is how to take young men and young women from the farms or from other useful occupations, and carry them through the high school course or college course, and leave them content but better prepared to prosecute the work in which the school found them.

But I have not time to speak further of causes. We are going to town. It is a fact, a great fact, the greatest fact of the last quarter of the nineteenth century. More hangs upon it than upon all other facts of our times. Is it a forward move? Is it leading toward better living for the people, or is it retrograde? It needs only to be said to be proved, that no such sudden change of environment, of occupation and of purpose, on the part of so great a proportion of the people could take place without profoundly affecting all social, political and economical relations and conditions. Will it affect these favorably or unfavorably? Without doubt I say it will affect them all unfavorably, disastrously. It is easily demonstrable that the bulk of the failures, the sins and the woes of the human race, have been in all time, and are now due to over-indulgence of this same old gregarious habit; and we have a great case of it on hand just at this time.

How is the movement affecting that great, first interest of the world, agriculture? Most unfavorably. I know that heretofore farmers and landholders have looked upon this excessive movement of population to the town, with complacency. They have argued—more people in cities means more consumers for farm products and consequently more remunerative prices for those products. This is a great fallacy. Over growth of cities brings unremunerative prices for farm products. Do we not know that agricultural depression prevails and has prevailed for years in almost every country of Europe? Agricultural depression is chronic there. If more people in cities mean more consumers for farm products and consequently more remunerative prices for those products, then agriculture ought to be in a most flourishing condition in Europe instead of profoundly depressed as it is there. We have been taking unremunerative prices for farm products in the United States, the past eight or ten years. We have agricultural depression here, pronounced, with abundant signs that it is becoming chronic; and yet, at the same time, our cities have been gaining population year by year at an unheard of rate. Excessive population in cities brings unremunerative prices for farm products and consequent agricultural depression. I will demonstrate it. The city must have the products of the farm; she can not live without them. How does the city get the products of the farm? Money does not grow in the city with which to buy them. The city gets the products of the farm by exchanging for them those articles of manufacture and of art which are produced in the city and which are necessary or convenient or pleasant for the farmer to have. These are all she has to give, all she can give, whether the city be large or small. By the exchange of the

surplus product of the city, with the farmer, for the surplus product of the farm, the people of the city and the people on the farm are enabled to live and have the necessities and comforts of life. To make a fair exchange of this kind possible, implies some kind of balance between city and farm population.

Let us suppose that two-tenths of the people of a country—of this country—or of the world would be sufficient to do what, to save words, we will call the work of the city. Then it is true that within this proper limit of two-tenths, and up to it, more people in the city would mean more consumers for farm products, and consequently more remunerative prices for farm products, because within this proper limit all the people in the city could be usefully employed earning or producing some fair equivalent to exchange with the farmer for his product. But, suppose these two-tenths be suddenly increased to four, as it stands now in the United States, or to five, as it is in Europe; these four-tenths and these five-tenths must still be fed from the surplus products of the farm, if fed at all; but altogether they can furnish the country no more than they furnished when there were but two-tenths in the city, because the two-tenths were able to furnish all that the country needed or could take of the city. It is exactly as if I have work on the farm for five men. Five men apply to me to do that work; they say, if you will feed and clothe and house us we will do your work. We make the bargain and they do the work all right. After a while five more men apply to me to do the same work; suppose I take these on the same terms. I have no more work than I had before. Half my men will be idle all the time or all of them half the time. I will be feeding ten men now instead of five, but getting no more pay in work than I did when I fed but five. That is precisely the situation today between the farm and the town, both in the United States and in Europe. What is it to the farmers of the world if the cities of the world are overcrowded with unemployed or half employed people? These can have little or nothing to exchange with the farmer for his products; and as the city goes on overcrowding and overcrowding, each head there will have less and less to exchange with the farmer for his products, and the farmer will go on taking less and less remunerative prices for those products. It can not be otherwise.

The farmers of the United States are not receiving remunerative prices for their products; they are receiving what the consumer is able to pay. Supply and demand do not, under all conditions, regulate the prices of food products. The ability of the consumer to pay, often regulates those prices, and is regulating them now. The world's consumers of the world's surplus food products are poor; poor because too have gone to town where one was enough to do the work there. In 1891 and 1892 there was a great famine in Russia. McLean county sent nine or ten thousand bushels of corn there. There were twenty millions of people in Russia, hungry and starving; enough people to have made five or six such cities as London, or nearly a dozen such as New York. But the great famine did not raise the prices of wheat and rye a nickel a bushel in the ports of Russia; because those hungry people had nothing to give for them.

But some people think, or rather say without thinking, that these low prices for farm products are due to the use of improved farm machines, which have enabled the farmer to raise a larger surplus at less cost than formerly. This is another fallacy, and is easily disposed of. We have only had these queerly acting prices, which seem to be tending toward a permanently lower level, for the past eight or ten years; but we have had nearly all the improved farm machines, thirty-five to forty-five years.

The supposed cause is separated from the supposed effect by more than a quarter of a century of time, and neither has any relation to the other. I saw a reaping machine trundling around a beautiful field of wheat, doing its work all right, forty-six years ago. I saw a threshing machine driven by steam, separating twelve hundred bushels of wheat in a day, forty years ago last summer. We can do no more now. We had the two row corn planter—the greatest single improvement in agricultural machinery ever invented—thirty six years ago. The corn plow which does two rows at a time, was in

general use more than thirty years ago. One man and a team and plow could stir three acres of fallow ground sixty years ago as well as now. One man could husk sixty or seventy bushels of corn sixty years ago as well as now. It may be we have some bigger corn husking liars now than formerly. The feeding and care of every kind of live stock requires just as much time and labor now as it ever did. All the chief processes of the farm were accomplished just about as rapidly and economically thirty-five to forty years ago as now. It is true we have only had the twine binder fifteen years, but that is by several years longer than we have had these unremunerative prices, and besides, it is not certain, taking into account the cost of twine, that we save very much by the use of the twine binder, in the cost of harvesting our small grain crops. Improved farm machinery does not at all account for the lowering prices of farm products. The overgrowth of the city accounts for the fact fully and no other theory does. Excessive population of cities brings unremunerative prices for farm products, robs the farm of its people, stops or checks every kind of farm improvement, and inaugurates agricultural depression with all that that implies.

I wish I had time to speak at this point of the disastrous consequences which must and will surely follow the transfer of controlling political power to the city.

I believe it is not claimed that there is a single great city in the United States that is even decently governed. The controlling power in almost all our cities is with the corrupt and vicious element. There are not enough of the honest and competent to put themselves in control. Instead of growing better the condition grows worse. The probability that the political control of city and country is soon to pass to these cities which have so signally failed in self-government, is not a pleasant thing for the patriot to contemplate. But I have no thought of discussing here the general aspect of the political situation as between the farm and the town. There is a point, however, where controlling political power once transferred to the city will pull with destructive force upon agriculture. I can not forbear to speak of it, even at the risk of being a little tedious. It is here, and in this wise: The problem of city life is how to get living employment; every resource is tried and exhausted; government offers a resource, a rich resource, which the city will not be slow to develop whenever it feels sure of its power to do it. You may rely upon it, the influence of the city will be for the extension and broadening of the functions of government; such extension and broadening furnishes places and salaries and living for people who can not find other means of living in the city, but who will not live and work on the farm, where there is living and work for all. Some go so far already, as to openly advocate the employment by government of the unemployed of our cities. This has not yet been generally begun by government, but we are going that way. Innumerable boards and commissions and sub-commissions and departments and bureaus are being created; and the functions and enterprises of government, municipal, state and national, are being extended and extended. It gives employment to the unemployed of the city; yes, but it increases the taxes year by year on the farm and the farmer who has a business of his own. Nothing but money will pay these taxes and nothing but a surplus to sell will get that money. The prices which this surplus brings may be unremunerative, even ruinously low, but the tax must be paid and nothing will get the money to pay them but a surplus to sell.

Now it should not be the first and controlling purpose of the farmer to raise a large surplus of anything to sell. The farm is a place to live; the farm is a place where people may live; and the farms should be made to produce almost all the necessities and many of the conveniences and comforts and even luxuries of life; the first and highest purpose of every farmer should be to produce these within himself and on his farm. This is ideal farm life. This is the farm life to which every farmer should aspire. Raising a large surplus of any crop to sell is not ideal farming; raising or producing just as many things as can possibly be raised or produced on the farm, for the comfort and health and pleasure of the farmer and his family, is the highest purpose, the ideal purpose, of farm life. But it is just at this vital point that the overgrowth of the city pulls with destructive force, as I have said, upon agriculture. The farmer is compelled to abandon this highest

and best ideal of farming and bend his energies, largely, to producing a surplus to sell, because this is his only means of getting the necessary money to pay his constantly increasing taxes. The farmer is not interested in the broadening or extension of the powers and functions of government. Such extension and broadening increase the burdens of the farmer, but bring him no corresponding benefits. The benefits, if any, accrue to the people of the city. The farmer's interest calls for government economically administered, and limited strictly to the clearly legitimate powers of government. Simple, strong, economical government, should be the watch-word of all farmers.

I wish I had time to speak here also of the irreparable damage which must follow upon the depopulation of farm districts. Goldsmith uttered a great truth in rhyme, more than a hundred years ago,

"Princes and lords may flourish or may fade,
A breath can make them as a breath has made,
But a bold peasantry, their country's pride,
When once destroyed can never be supplied."

The process of reclaiming the lands of a country to agriculture, converting them into farms, and of stocking them with an intelligent farm population, is a slow process, but an all-important process in the growth of civilization, and in the growth of a nation. The march of civilization is the procession of the farms; when that farm procession halts, civilization halts; when farm population decreases, civilization and national strength decrease and begin to decay. It is a slow process as I have said, and difficult, getting people on the land. It is much easier to get them off the land; they may be rapidly swept from the land; those who leave the land do not return to it; farms once depopulated remain so; it bodes no good to a country nor to civilization to see smaller farms merging in larger ones—larger and larger tracts of land coming under one ownership. That means decay of civilization, always, and loss of national strength. A nation is growing and gaining strength when its lands are being divided and sub-divided into farms of moderate size. A nation is losing strength when this process for any cause is reversed. Overgrowth of cities reverses the process of small farm making.

But some of my good friends, discussing the question with me, are wont to say, "There is no law to prevent people leaving the farm and going to town, and no such a law can be enacted. As many people as wish to go to town will go," they say, "and that is all there is of it." That is a very ready and easy way of disposing of the matter. I agree with my friends, we can not enact a law to prevent people going to town to live, and there is no law to prevent them, except that great law of all laws, the law of self preservation. When we come to think of it, there is no law to prevent people going to hell, except the law of self-preservation. But still it is better that people should not go there, and more has been done and said to prevent people from going there, than for any other purpose in the universe.

Now let us turn, for a while, from the farm to the condition of the overgrown city. I assume that there is such a thing, or could be, as a proper balance of population, between the town and the farm; that there could be a certain proportion of the people in the city, and another certain proportion on the farm which would make possible the best conditions for living, both in the city and on the farm. We do not know where this point of balance is, nor what these proportions are. We probably could not rigidly maintain them if we did. But this we may know; we may know when the city has far outgrown all safe and normal proportions; there are infallible signs by which we may know it. The cry of unemployment, unemployment, in the city tells the tale with dismal certainty. You have heard that cry. It is a familiar cry. You need not go out of our own little city of Bloomington to hear it any day of the year. When millions of people in our cities are pleading or fighting for employment something is badly out of line. Familiar cry,—that cry of unemployment, and yet a strange cry. Strange, isn't it strange—just outside the city, in the open fields, in the pure air, under the benignant sky, employment, useful, helpful, living employment for everybody—just inside the city, war for employment.

If we have heard much of this cry of unemployment in recent years we shall hear more of it in the future. We have seen that city population is rapidly increasing, but farm population is stationary or receding. The market (which is the farm) for the products of the city, is narrowing, but the number of people in the city who expect to find employment supplying that market, is rapidly increasing. Thus the cause, or the condition which is the cause of unemployment in the city, is gaining force and volume, both from the increasing population of the city and the narrowing market for its product; and we shall yet hear a louder wail of unemployment from the city than we have ever heard in the past, or we may hear something worse. Unless by some means the conditions which are the cause of unemployment are modified or removed, we will hear something worse than the cry of unemployment. I take it to be a truth that far the larger share of the poverty and misery and degradation and crime of the city, and about all of that bitter, chronic strife between capital and labor in the city, are due, primarily, to unemployment. I think this is the view taken by most thoughtful and careful observers. It would be in logical order, at this point, to speak of the miserable condition of a very large part of the people who live in the cities of the world. I have not time to speak so at length, and I am very glad to have a valid excuse for getting over the matter quickly. In the city of London, this huge wave of population which has been sweeping from the land to the town has reached its greatest and most threatening height. Ruskin spoke of London twenty-five years ago as "A fermenting mass of unhappy humanity." There are fifteen hundred thousand people in London on or below the poverty line. One in five of all the population of London dies in a workhouse, hospital or insane asylum. One in three of all over twenty years of age, dies in a workhouse, hospital or insane asylum; and these figures take no count of an immense class who receive what is called "out door" help, no account of these being kept.

Professor Huxley has said, "Anyone who is acquainted with the condition of the population of the great cities of this, (meaning Great Britain) or of other countries, is aware that amid a large and increasing mass of that population misery reigns supreme." The Professor further says: "There is not in all Europe a single great manufacturing center that is free from a vast mass of people who, living just on the verge of the social swamp, are liable to be precipitated into it for any lack or check of demand for their produce; and with every addition to the population the number of those already sunk in the pit and the number of those sliding toward it continually increases."

The cities of the United States I will not say have all reached the same wretched level of the older cities of Europe; some are worse; but all are going rapidly and inevitably to the same point of degradation and want and strife, already reached by European cities.

Millions of people are massed where they are not needed; where there is no living employment for them, and where there never again will be. The poverty, the degradation, the crime, the strife and the unrest must increase, and increase rapidly unless the conditions are changed. You are familiar with the scores of plans and projects and 'isms, worthy and unworthy, which have been proposed or tried for the cure of the evils of the overgrown cities of our day. All these are futile, so futile that they appear to me almost pitiful. There is no cure, absolutely none, while the conditions exist. Charity fails and utters a cry of despair; the want increases far more rapidly than it can be relieved. Philanthropy fails, laws fail. Profit sharing will not help it, nor coöperation, nor arbitration, nor trades unions, nor labor unions, nor strikes, nor lockouts, nor free silver, nor gold standard, nor bi-metalism, nor republicans, nor democrats, nor populist, nor middle-of-the-road, nor prohibitionists, nor woman suffrage, nor high tariff, nor low tariff, nor free trade, nor more schooling, nor less schooling, nor schooling all the time, nor private schooling, nor public schooling, nor part of these, nor all of them together, can help or alleviate to any sensible degree, the evils of the over crowded city.

But this vast overforce, this unemployed, unused and unusable force of the city will find some outlet, it must, it is in human nature. There is too much of it to decay where it is, and besides it is constantly and liberally replenished.

It is finding outlet in Europe in preparations for war. History furnishes no parallel for the gigantic war preparations which are now proceeding on the continent of Europe. First it was by land, now it has burst upon the ocean; and the accumulated wealth and power and knowledge and skill of generations is being exhausted in the construction of innumerable battleships of monster proportions and monstrous destructive power.

The vast unemployed and unused overforce of our American cities is beginning to find outlet and vent in the same direction. We have lately come through a little war and are now making preparations for possible greater wars. If the real force, the true force, which precipitated the war with Spain and which is now drawing our country into a dangerous career of annexation and expansion, could be singled out and identified, we would find it to be none other but the pent-up, unemployed force and talent of the city, seeking for place and employment. Expansion for the United States by the acquisition of new territory is colossal folly. Prolific England, from her populous island home, may expand with reason, but what shall we say of expansion by the United States when our farm population is stationary or receding over vast areas of the best land the sun shines on. We can safely expand on our own good ground for a hundred years to come. External expansion for the United States is a delusion, a snare; it is fatal scattering and not expansion.

What is it that has dropped this craze of empire like an epidemic upon the leading nations of the earth? Something is pushing the whole world in the direction of war. Maybe from my humble standpoint and with my poor vision, I do not see things as they are. Did you read that remarkable speech given by Lord Salisbury a few weeks since on the occasion of the lord mayor's banquet in London? From his position I imagine he is able to get a pretty good view of the situation. I will quote you verbatim some parts of that startling deliverance, (using my h's of course, or not using them as we are accustomed to do in this country.)

Reviewing the state of the world, Lord Salisbury said: "In some respects this era, this great epoch in the history of man, is marked by unhappy omens. It is the first year in which the mighty force of the American Republic has been introduced among the nations whose dominions are expanding and whose instruments, to a certain extent, are war. It is a grave and serious event, which may not conduce to the interests of peace."

"What has been impressed upon us is,—that the subject matter of war is terribly prevalent on every hand."

"If England should ever permit her sea defenses to weaken, her whole empire would come clattering to the ground. It is therefore impossible in the present state and temper of the world, to intermit our naval and military precautions." A fearful admission to fall from the lips of a British premier in the closing years of the nineteenth century. The greatest empire in the world, upheld from day to day by the sheer force of military and naval power.

What is it that is pushing everything in the direction of war? But I forget, the statesmen tell us these preparations for war are not preparations for war, but preparations for peace. How can preparations for war mean preparations for peace? It is a hideous absurdity, a ghastly fiction. How long will the world be cajoled by it? Preparations for war mean preparations for war, and not preparations for peace, and war will come if the preparations go on. What is the cause of it all? The people are leaving the land; that is the cause of it all; they are spurning agriculture, that great peace conserving employment of the race. What will come of it all? One of two things will come of it. Either the people will go to war, or they will return to the land; with probabilities strongly in favor of going to war. Is this civilization? Is the present state and temper of the world as described by Lord Salisbury a state and temper of civilization? No, it is a state and temper of barbarism. The controlling political forces of the world today are barbarous or tending to barbarism. When nations shake the earth with the martial tread of millions of armed men, and roam the ocean in fleets of battleships, it is barbarism, just as true as ever dominated the wild forest or plain.

The first break into the state of savagery is a fenced and tilled field. When a savage nation begins to farm it begins to be civilized; as long as it farms it is civilized. The better it farms, the better its civilization; when it neglects farming its civilization wanes; when it abandons farming it goes to barbarism again. There is a state of savagery and barbarism before we come to farming, and there is another state of savagery and barbarism after we leave farming; and "the last state is worse than the first." Savages are savages in the forest and wage war for want of other and better employment; unemployed and unused people in the city become savages and wage war or prepare for war, for want of other and better employment. Nations never climb back over their fences and take to the woods to be savages again. They go out through the cities.

What is civilization? I find people have trouble in defining civilization. I have questioned many of my wise friends for a definition of civilization; they have not been able to satisfy me with their answers. Bishop Spaulding, that thoughtful man, said in his lecture here a few evenings since, "Civilization is a very hard term to define." I believe I will make bold to say that I know what civilization is, but I will not tell you even the truth too abruptly; let us lead up to it gently. We have seen that agriculture is the beginning of civilization. We have seen where agriculture is carried higher, civilization is better. We have seen, and may see, over the whole world and throughout the book of history, that wherever and whenever agriculture has been carried to its greatest state of perfection, there is and has been the highest state of civilization. We have seen that where nations begin to neglect agriculture there civilization begins to decline. Where nations abandon agriculture, there barbarism sets in again. Shall we say then that agriculture is the beginning of civilization? Yes, and more. Shall we say that agriculture is the inseparable companion and support of civilization? Yes, and more. Shall we say that agriculture is the end and ultimum of civilization? Yes, and more. Agriculture is civilization itself. Civilization is agriculture; agriculture is civilization; civilization and agriculture are one. There is nothing before, nothing higher, nothing beyond, agriculture. Agriculture is the original, natural, necessary, single and universal business of mankind. Every other art, trade, profession or calling whatsoever is secondary and dependent and useful only when in such degree as it may contribute to the one great and universal business, agriculture. We must teach agriculture, it is the social, political, and economical salvation of the nations.

Take the courses of study in all our schools high and low, public and private. First throw out just half of all that is found in those courses; from the remaining half throw out about three-fourths of the "bams," and "bats," and "rants," and "runts" of a lot of dead languages; then throw out about three-fourths of all the other things that you find there. Re-construct, put in the place, such living terms as corn, and wheat and oats and trees and shrubs and cattle and horses and sheep and swine. I forgot the potatoes. Don't forget to put in the potatoes; for as sure as we live, the time has come when millions and millions of people, voluntary reconcentrados in the city, must get out of the city and learn to plant and hoe and dig and "bug" and eat their own potatoes.

It almost makes me heart sick, to see young men, capable young men, educated men, of good parts, mental and physical, seeking "positions" in the city. The "positions" in the city are all taken, and hundreds are waiting around for a possible vacancy. Take my advice young men; it is safe. Quit seeking for a "position" in the city; it is not the thing for you to do. Don't wait in the city for some man to give you a "position," which he can take from you at his will. There are positions for you without number on the fertile slopes and in the pleasant valleys of this wide wide land. Positions which will yield you a good living. Positions which you can hold for your life and bequeath to your children. Get out of the town and learn to farm. You are not needed in the town. Get a "position" on the land; get a home; get a wife and children, to love and be loved by. It is the greatest thing there is for most of us; and what after all is greater?

But how is this reckless rush to the city to be checked or stopped. I will not say I that I know how it can be done. This I do know for a truth; we must exalt agriculture. On the first page of my first reader there was a picture of the Temple of Fame, standing on a hazy eminence; a broad ascending way led up to the Temple of Fame; at the foot of the way was a group of school children with their books and slates under their arms, and at the foot of the page was this little verse:

See where Fame's Temple Stands,
Like Beacon from afar.
Press on ye youthful hands,
Let no true heart despair.

We must tilt that way or the other; put the Temple of Fame down here, and a farm with its fields and orchards and barns and its pleasant farm house, up there on the eminence where the temple of fame stood. Set the brakes hard on every force that is pulling unduly from the farm to the town; reverse and pull for the land. Pull as a man pulls against the current who feels himself drifting over Niagara.

The nineteenth century will stand among the centuries as that one in which the nations learned that all men are born free and equal. May we not hope that the twentieth century will stand by its side as one in which the nations learned that *the earth is a farm and man is a farmer*.

I brought you an old, old question tonight; older than any of our cities, older than New York, older than London, older than Rome, older than Jerusalem. Four thousand years ago two men, farmers, cattlemen, Abraham and Lot, stood on the mountain side between Bethel and Hai and discussed this same question,—“Which is preferable, city or country life?” The flocks and herds of Abraham and Lot had become so great the land would not hold them. They had met that morning to talk over a separation in the interest of peace. During the talk, Lot let fall some expression which betrayed his inclination to go to town to live. The discovery filled the breast of his uncle Abraham with deep concern, for he loved his nephew and he remonstrated with Lot against leaving a sure good thing in the country for the chances of the city; but Lot had anticipated this and he was fortified with the stock arguments for city life. I imagine he said first, “I very much desire better church privileges which I will have in the city.” That was an unkind cut, though probably unintended; for hard by where the men stood was an altar which Abraham had builded some years before, as he journeyed that way toward Egypt. “What better place Lot, than by this altar here, for the soul of man to commune with its Maker, in this solemn stillness, the eternal hills around, and naught but the bending heavens above?” “Yes, that’s all right, uncle, but you have no cushioned pews here, nothing but rocks to sit on, and you know yourself, uncle, that the singing is perfectly awful, and everybody comes to church here, ‘rag-tag and bobtail,’ and sometimes when I get here a little late and walk down the aisle, just as likely as not some ‘rag-tag’ is sitting right up in front, on the biggest, smoothest, softest rock in the outfit.” But Abraham made no reply. Then Lot said, “My wives have such a time getting help out here in the country to do the housework,” but Abraham said, “I hear it is just as bad or worse in town; indeed, some ladies came out from the city to visit us the other day and they talked the whole time about their hired girls, how hard it was to get a good one, and so on.”

Then Lot spoke of the bad condition of the roads in the country, especially in the winter season, and he was just about launching into a dissertation on the subject of hard roads when I imagine Abraham said something like “if people would only try to have a little more hard sense and do their hauling when the roads were good, which they were for about ten months in every year, and keep off the roads when they were soft, we wouldn’t hear so much about hard roads and bad roads.” But then Lot came back with that clincher which has settled the qualms of many a man who wanted to go to town to live: “Really,” he said, “uncle, I feel obliged to go to town in order to educate the children; they say they have school in town about all the time.” It is a long way off but I can plainly see the puzzled, anxious

look which this school argument brought to the strong, kind face of Uncle Abraham. Nothing was too good for the children in his estimation. But to his mind, education was a great, great thing. With his simple mind it was hard for him to see or understand how a few inexperienced young people could do it all for the children, even if they schooled them the year round, from youth to age. But it was the same then as now with all discussions—each side convinced itself. "Lot pitched his tents towards Sodom and dwelt in the cities of the plain," but Abraham staid with the land. You know how it fared with Lot; he was not long "blowing in" his great fortune; domestic and financial troubles beset him, "his city went up in smoke," he escaped barely with his life, to a smaller town, but so terrified he could not even rest there, and at last, slipped into a cave in the woods, a broken, disheartened man. Poor Lot: there have been lots of Lots.

But what of Abraham, the man who staid with the land? We left him standing on the hillside, his eyes riveted on the ground, meditating deeply on that school question. "Lift up now thine eyes," Abraham, "and look from the place where thou art, northward and southward and eastward and westward, for all the land which thou seest to thee will I give it, and to thy seed forever." Why not? He staid with it. "And I will make thy seed as the dust of the earth, so that if a man can number the dust of the earth then shall thy seed also be numbered." "Look now towards heaven and tell the stars if thou be able to number them, so shall thy seed be, and I will bless thee, I will make nations of thee and kings shall come out of thee." "Arise, walk through the land, in the length of it, and in the breadth of it, for I will give it unto thee." O how the promise to the man who staid with the land has been fulfilled and fulfilled and fulfilled, over and over and over, again and again and again, as the ages have rolled after the ages away.

The men who have staid with the land have had the blessings of the earth; they have eaten its fresh, ripe fruits; they have breathed its free air; they have drunk its pure waters; they have wrought in its living sunshine; they have rested in its leafy shades. To them the changing season brings varied, healthful, living employment; to them the harvests brings faith and trust in kind and bountiful providence, to them "the heavens declare the glory of God," to them the solemn, quiet nights bring visions of eternal rest and peace. The men who have staid with the land ask no man for employment; none say to them when go, when come, when lie down, when rise; they are their own masters, free. The men who have staid with the land are they who have homes. They have tasted the pure delights of simple, real, natural home life; they have felt the sweeter spell of woman's native charms, untouched by trick or gloss of art; they have pressed the rosy lips of rustic health and beauty, they have quaffed the deepest, purest, sweetest drafts of connubial love; they have seen their children fed and clothed, and trained by youthful work, grow strong and brave for the battles of life. From the seed of the men who have staid with the land have come the poets, the painters, the philosophers, the preachers, the teachers, the physicians, the orators, the judges, the statesmen, the captains and the kings of the race.

Mr. Davenport: We will follow the program with a few minutes discussion. We will hear from a few of our people on the thoughts that have been presented.

Delegate: I would like to ask, Mr. Chairman, of the gentleman, how many of the descendants of Abraham he knows today who are hard working farmers?

Mr. Kerrick: The Jews are the greatest agriculturists of today. I spoke mostly of men that have stayed with the land. I said in the first place that where they left their jobs they were failures.

Major McClaughry: I would like to ask the gentleman why he moved to town?

Mr. Kerrick: I can answer that, I believe. Why does Major McClaughry stay by the penitentiary? He is a very good man and stays there to keep others from getting in there.

Mr. Hartwell: I was expecting to hear you say something more of Prof. Turner. We are all looking for literature along the line of industrial education. If you want something real rich and modern, and up-to-date, go back about forty-five years ago to the old horticultural reports of the State of Illinois and read Prof. Turner's speeches on those questions. They contain all the modern arguments in favor of industrial education.

Delegate: Mr. Chairman, I would like to ask another question. I believe that over 80 per cent of the population of British India are agriculturists, pure and simple. Would the gentleman say that they are the highest type of civilization?

Mr. Kerrick: I don't know of the facts in British India. First I would say of that question, it is rather far fetched from British India. I would not attempt to answer.

Mr. Hartwell: You made the statement that civilization is agriculture and agriculture is civilization.

Mr. Kerrick: If I have given you something to think about, if I have stimulated thought in your minds, I have accomplished all I started out to accomplish.

Mr. Grundy: I believe you stated that the prices the farmers were receiving at present are not remunerative. Supposing all these people who go to the city would remain on the farm, and join the present number of producers, wouldn't the result be still further under remunerative prices?

Mr. Kerrick: No, sir.

Mr. Hartwell: And why?

Mr. Kerrick: The highest ideal of farm life is not to raise such great supplies of corn and oats or wheat to get money to buy other things; that is not ideal farming. An ideal farm is a farm on which people can live and are prepared to live and fixed to raise almost everything they need to live upon and which they need for comfort and even luxuries. My theory of farm life is the life that lives on the farm and little dependent on the city. Wouldn't you rather eat your own products than sell them for half price?

Delegate: Does the gentleman mean to say that if a farmer raised and ate everything he raised that would be the highest ideal of civilization?

Mr. Kerrick: I did not say that. You might guess at what I said. Ideal farming, as far as possible, implies that every necessity and comfort and luxury of life is raised and consumed on the farm as far as possible. I said that a right condition of things implies a certain balance between city and country population.

Delegate: The second clause was a saving clause in a way.

Delegate: I believe a man may live either in the city or country and if he has no higher ambition than mere work, there is not much in the man. There is a destiny for all men. A man may have ambition to become a farmer or a merchant—that is the means of his living. Take the farmer today and I believe the reason he is turning toward the city is because he is becoming better educated and is having better ideas of what is good for him, and he is getting ready to go and take the place of the man in the city and let the man in the city go out and wear the “gum boots” and feed the stock and see how it was when he was a boy. I believe that our great men generally go from the farms, and take the farmers of today and they have this ambition to become great. You will find the senate of the United States has only three farmers and there are only a few in the State representative hall. We farmers feel if we can get into town we can meet on the street corners and learn how to talk and get into positions in this way.

Delegate: If it were not for the farmers of the country who have gone to the cities and made great fortunes there would have been very little use for cities. It is the strong, healthy blood of the farmer boy that goes to the city. I can cite you in the cities a score of men at least who have been farmers and some have educated themselves. It is not the destiny of every man born on the farm to remain there. It is for those who grasp the business end of farming. The city men are entitled to as much credit as the farmer who takes the business end and makes money thereby.

WEDNESDAY, FEBRUARY 22, 1899.

MORNING SESSION—10 O'CLOCK A. M.

The hall was decorated with flags, etc., in commemoration of Washington's birthday.

The program was of a patriotic nature.

Piano solo, Star Spangled Banner—Miss Jennie Smith, Princeton.

Piano solo, Drum and Fife—Miss Jennie Smith, Princeton.

Hon. G. A. Willmarth, Chairman.

MR. WILLMARTH: Rev. James McLaren, of the Congregational church, Princeton, will open the exercises with prayer.

Prayer by Mr. McLaren.

Almighty God, our dear Heavenly Father, bless us as we come to Thee. In this morning hour we pray that Thy spirit may be with us. We thank Thee for this convention. We bless Thee for Thy loving kindness which has permitted so many to come here from different places. We thank Thee for the health and strength which has permitted us to be here. We thank Thee for this day, and we pray that now as our spirits have been lifted in music because of its spirit and what it represents, that Thou wilt fill our hearts with high and patriotic thoughts.

We thank Thee, Heavenly Father, for the life of our first great president, whose birth we celebrate this day. We thank Thee for the many noble men who have followed him upon the roll of this great nation.

We pray, Heavenly Father, that today Thy spirit may be in our hearts.

Bless Thy servant, the President of the United States. Bless all associated with him in carrying on the affairs of this great nation. We thank Thee for the land of the free and the home of the brave. We thank Thee especially for the dawn of peace and prosperity. Ever may the banner of peace wave over us. May we always have a land of unity and peace and plenty, and may we become as a nation whose God is the Lord.

We thank Thee, dear Father, for home with all its charms. There are many homes here represented this morning.

Upon those who are absent in different places of the world, we pray Thy blessing upon them all. May Thy spirit be round about them, and underneath, Thy everlasting arms. We thank Thee for the influence of the home and for the tender memories which it brings to us as we look back upon it.

"How dear to our hearts are the scenes of our childhood,
When fond recollections present them to view."

And this morning our thoughts flow back over the past; we remember the dear and sacred things which have always been an inspiration to us and are still. So Father, bless our homes and may we enoble them and may they be pure and sweet and beautiful. May they be emblematic of that bright and happy home of which Thy servants have told us. Hear our prayer this morning as we come together. May Thy spirit be in this organization. Bless all the officers, and him who presides at this meeting, and may the influence of this meeting go into all the homes and all the region about. And may farm life, in the estimation of all of us, become what it really is, the most beautiful in the world.

Hear our prayer now, and guide us evermore. We ask these blessings with the forgiveness of our sins, through Jesus Christ, our Lord.

MR. WILLMARTH: The morning session will be devoted to the discussion of the marketing and buying crops. The first paper will be on the marketing of fruits and vegetables, by G. W. Barnett, of Chicago.

Mr. Barnett addressed the convention, as follows:

MARKETING OF FRUITS AND VEGETABLES.

When asked to prepare a paper on "Marketing Fruits and Vegetables," I was requested to briefly mention the preparation of the product for market, the best time for the sale of fruits and vegetables, and other matters of a kindred nature which would help to make the business a success. I appreciate the intent of your committee in so wording the invitation, but I must beg leave to plead my inability to properly treat of the whole question in the time I am expected to use.

Perhaps I can do no better than by taking up the matter somewhat in the order in which it was suggested, and very briefly, as I am convinced that this question should be presented more at length than it is possible for me to do in the time at my disposal. Of the growing of the crop I say nothing, for I do not consider that in the line of my subject. A sentence will suffice: Grow the best possible and the articles that are in demand in the general market.

I hold that you, as practical business men, are not expected with your main crops to plant anything the consumer does not want. It is your business to supply the demand, and not to try to force your ideas of what the market ought to take; to supply the demand and not to spend your time in educating the public to believe as you do. It is often "love's labor lost." Send people

what they want, not what you think they ought to want; but see to it that what you produce is the best of its kind, and let nothing go undone that will secure excellence.

Remember that others will meet the conditions required, if you do not. Some will put forth their best efforts to meet the requirements of business, of trade, for you are practically in business as soon as you attempt to dispose of the products of the soil. Bear in mind that the best is demanded, and will be secured. Quality, condition, and style of preparation, all enter into the problem of supplying the demand, which we assume does exist, and you may as well at once look squarely in the face the fact that when you enter the market to compete for buyers, you must compete, as you certainly must unless you have a monopoly, and it is generally conceded that the farmers are not among the monopolists. Market your crop as soon as ready. Men are apt to hold for higher prices—to speculate a little, but nothing is ever gained by holding perishable goods for a better market. Let parties on the ground speculate if they will. It will not pay you, for the loss in quality and condition will more than equal any possible advance in price, and the advance usually is for fresh receipts, not held goods.

It will not do to ignore any of the conditions necessary to success. There is no use in shipping fruits or truck which have been aptly characterized as "stuff" and paying freight on the same. Especially is this true when you can improve the conditions. Often goods that are of fine quality have had the sale ruined simply through utter neglect, or ignorance of the manner in which they were prepared for market.

We all know that with the best of care, with the best of culture, there will be enough inferior stuff grown to supply all possible demand. Remember that the best goods sell first, and this of itself is a premium on that grade. Do not understand, however, that all first class goods under any and every circumstance will sell well. When there is an over-supply, or there is a glutted market (as it is termed), and more is offered than there can by any possibility be found purchasers for, some must suffer and must sell at a lower price than the first selections, even though all may be of the same quality; but the best, as a rule, sells first, and under ordinary circumstances never sells for less than the ordinary or inferior qualities on the same market, at the same time.

If there is ever anything left unsold, it is that of ordinary or of indifferent quality, of poor condition and undesirable in general appearances. If anything is left unsold after the market is over, if there is anything sold at a lower price or less than the market price, you may be sure it is not the desirable package, and the mere fact of any stock being sold first, as a rule, may be said to command a premium, for it enters at once into consumption, and thereby avoids losses, which of itself is a very decided advantage. There are exceptional cases where the inferior qualities sell at the same price as desirable goods, but this is never the case except where there is not desirable stock enough to supply the demand, and it is the good fortune of the shipper of the poorer grades, and no disadvantage to the shipper of the better class of goods.

It may be claimed, however, that no one can produce all desirable goods, consequently he may just as well grow the medium stock and be satisfied with producing that grade, rather than take pains to grow the best. God pity the man that is perfectly satisfied. He has no incentive to do his best, and in the race for success each must strive for excellence if he would win. With the very best of cultivation, there is enough of the inferior grade to supply all outside demand, and each should make the best result possible.

Our Lincoln said, "God loves the common people, for He made so many of them," and many seem to think that God loves inferior products, because there is so much of them produced. It may be taken for granted that there will be common and inferior fruits of the orchard and field even among the production of the most careful growers, to supply all possible demand.

Many will make this as an excuse, but did you ever notice that while God loves the common people, and has no word of reproach of the poor, the down-trodden and those who are unable to rise in the social, intellectual or finan-

cial scale. He has on the contrary words of cheer and comfort for them? yet throughout the whole of the record, the best have commanded His praise and highest honors have been given to such as those who have done their best: Abraham, Isaac, Jacob, Moses, Paul—the best of earth. While He has words of tenderness and compassion for the unfortunate, He remembers that man is commanded to do his best.

“Whatsoever thy hand findeth to do, do it with thy might,” is just as true in tilling the soil as it is in the mightiest flights of human activity in any department of life. God never said aught against the rich as such, or the best and greatest of earth. He demands the best you have to give, and your best efforts are rewarded by the highest excellence and your labors crowned with success.

Nature coöperates with man and seconds his efforts, but she does not make good his short-comings, but simply seconds his efforts, and does the best she can under the circumstances. Well directed labor is usually crowned with success by a vastly improved product, but it is necessary to use common sense in all business affairs, for no matter how great the effort, it certainly will not be successful in the growth of tropical fruits in Greenland, while the same amount of energy would command success if put forth in temperate or tropical countries. Do not forget that men demand a success in everything and are willing to pay for the best. Do not misunderstand that remark. They are willing to pay for it, and will pay a premium for the best that is placed within their reach, but this does not mean that the purchaser will pay the cost of production with a profit on the labor involved. This must be thoroughly understood.

The competition by placing on the market of the product of your labor, in competition with the product of the labor of others one hundred, or five hundred miles away, under circumstances, it may be, more favorable than you enjoy, will be the test of your efforts.

To sum up briefly then this part—produce only the best and the qualities and varieties that the market demands. What to plant must depend very largely on the market you are to supply. The growers of the southern part of our State will confine themselves to a few leading specialties that they can produce (owing to their favorable location), and have the market to themselves, before the rest of the State can engage in supplying the demand, and while the growers of the northern part of the State are possible consumers instead of purchasers. When you remember that the State of Illinois is nearly 400 miles long, you will see that the latitude covered and the time of maturing fruits and vegetables vary greatly from Cairo to East Dubuque, so that what would apply to Union county would scarcely hold good in Jo Daviess county or even Bureau county. This general rule may be noticed, that for fruit and garden truck grown in this State, consumers must be sought north of the point of production, late maturing produce alone being excepted. That the farther south one locates the longer time he has for the profitable marketing, is well known to all. This is especially the case since rapid transportation facilities have almost annihilated time, and strawberries ripened under the warm sun of “Egypt” are exposed for sale in Chicago while ice is on the ground and snow fills the skies. This feature, too, should be noted, that the purchasers of fruit and early vegetables are mainly in the cities, and whatever is grown to supply the demand should be produced with that point distinctly in view from start to finish.

As the Honorable S. T. K. Prine had the marketing of farm crops for his subject. I confine my remarks exclusively to the question of fruits and market gardening, or as is generally termed truck gardening, and the above is intended for that special branch of the farmer's work. It is well also to remember that the season is practically the same through or across our State from east to west. The area of production in Union county of products and fruit is confined within small limits. The farther north we come the greater is the area suitable for and capable of producing larger crops, with the constant reduction of consumers at what may be termed profitable price. The

producing section is limited at Cobden for instance. The area is increased at Centralia. At Springfield there is a still wider extent of territory that can be drawn from, while at the latitude of Chicago the entire State goes into the bearing line, for all of the former territory is still producing.

Often the question is asked by men of this latitude: Why can we not obtain as good prices when we grow market truck as it is possible to obtain from the products of Union county? A moment's reflection will show the reason why. For instance, when the asparagus of Southern Illinois first comes on the market, it brings a price of \$3.00 to \$4.00 per box, yet it is claimed there is no very great net profit in that on account of the difficulty of production, but when Princeton's home crop is ready, which we assume is ample to supply the home demand, \$1.00 per box would be vastly remunerative to the grower; for the conditions under which it can be grown are so improved that the production of this belt of country is largely in excess of any possible demand.

In packing for marketing, and the style of package that you should use, have the same high mark of excellence before you that you would have in the production of your crop. Again, remember that "style" of package is demanded. The highest possible excellence is required in this. Remember that even in the garden of Eden, we are told that "God saw everything that he had made and behold it was very good." Again we are told that mother Eve said that the fruit of the tree "was good for food and pleasant to the eye and to be desired." I believe that every son and daughter of hers from that day to this have been largely influenced by the appearance of things, and nowhere more so than in the cities, among the purchasers of your product. Appearances have very much to do, when the housekeeper goes marketing, as it still does when her daughters are in the market. If common report be true, there is many a match made on account of appearances. When appearance and intrinsic worth go together, the purchaser is entirely satisfied. It will not do to neglect appearance in preparing for the market. It helps make the sale and anything that helps make the sale should be taken advantage of if you wish success.

Remember that others will meet the conditions required if you do not. Some will put forth their best efforts to meet the requirements of business, of trade, for you are in trade. You are in business the moment you attempt to dispose of the products of the soil. Bear in mind that the best is demanded and will be secured. Do not consider that because a certain amount of labor has been expended that you can always command a profit for your labor. Quality, condition and style all enter into the preparation of the products when competing for buyers, as you certainly must, unless you have a monopoly; and it is generally conceded that the farmer and the fruit grower are not among the monopolists. It will not do to ignore either of the conditions. Then there is no use in shipping fruits which have been aptly characterized as "stuff" and paying freight on the same, when you can improve the conditions. There are often goods that are of fine condition, the sale of which has been ruined, simply through utter neglect or ignorance of the manner in which it is prepared for market.

Today all points are considered by buyers,—not only quality, but condition and that subtle quality we call style. The general first appearance goes a long way in attracting, and I mean the style of the package as well as the style of the fruit is considered. There is no use in the world in shipping even good products of any kind if they are put up in a "slipshod," careless, indifferent manner. What would you suppose of the peach grower putting up magnificent fruit in split slat packages, put up without any regard to the general appearance? What would you think of any one sending fruit to market in rough, uncouth packages that have the ear marks of the sloven about them, when put in competition with the neat, trim, tasty packages that are being used now to market our products in the main?

One railroad man in addressing a community where the fruit and vegetable industry was in its infancy, said, "You ought to be ashamed of the way in which you put up your packages. You ought not to get a cent for them. No use in shipping such stock to pay freight on it. Why, look at your potatoes. You have split potatoes, and cut in the digging, stock just as it grew

without any sorting out. What is the use of paying freight on such stock? Remember it must come in competition with the best of culture, with the most advanced methods and put up in the best possible manner."

Carefully sort your fruit. Carefully select your produce. "Wash your potatoes; they sell first," said a man to his son, and he stated the truth. It was a small grower living near the city, but the fact was that that boy's potatoes,—for he heeded the advice ever after—sold first, and that of itself is a premium. Who of you who wish to buy potatoes would not pay more for clean, bright tubers than for dirty, misshapen, mixed stock all covered with dry mud? Apply a little common sense to this question and you can see the reason for the advice. Put up everything in a neat and attractive a way as possible.

Use the best possible make and quality of package that is offered for sale; not always the most expensive, but possessing at least three points: first, the ability to safely carry and protect the contents; second, to permit of a reasonable examination and estimate of the value while displaying the same in a neat and tasteful manner; lastly, of a minimum weight, thereby effecting a saving in transportation charges. The foregoing apply only to the preparation of the goods for market, and the principal point comes next, which is, How shall marketing be done?

Up to the present time, it has been found necessary to call in the aid of an agent to effect profitable sales—the transfer of the product into ready cash. The time was when each purchaser took his own crop to market, dispensed with all agents or middlemen and personally visited his patrons. True his operations were limited, and as he gradually extended his business he sent one of his own hired men to market, for he could hire one at a less expense to go in his stead and pay him a salary to do the work. But his absence from his farm or garden caused more of loss than the saving he would make by attending to his own sales, and experience proved it was costly to do the work himself. Some men are born traders, and the selection of the fittest for this work soon proved that the same man who could manage the producing portion of his business to the best advantage was not *always* the best salesman of the product when it was ready for market.

When peaches were brought to Chicago from Mississippi about 1865 or 1866 by Mr. Stackhouse of Crystal Springs, he made a good sale as far as *price* was concerned, but his expenses absorbed his entire proceeds and it was absolutely necessary for him to use the services of a third party. Whether it is one mile, or five, or 500 miles, the same principle holds good. The grower was forced to employ some one who was a resident in the market, either temporarily or permanent, to save the cost of going to and fro with the product to be sold, and especially as market gardening deals very largely in small quantities, and frequent placing on the market, as a rule, daily shipments. Experience proved it was the better way to pay for the services of this agent, who should be a resident of the market and well acquainted with its peculiarities, and thus accomplish two things: Allow the producer to devote his whole time to the growing of the crop, and save the cost of going between the two points. As pay for this work of selling, collecting and paying freight, a percentage was agreed on and the balance remitted to the grower. But it was found more satisfactory to make the selling agent a virtual partner in the transaction, thereby commanding his best efforts to obtain the highest possible prices, and reduce the loss to a minimum. An agreed rate of commission by common consent was established which in the main is adhered to, and briefly may be called 10 per cent of the gross amount of the sales.

Very briefly, this has been the rise of the commission merchant, and gradual growth has led from the creation of a necessity until he has become a necessary creature. We may assume the entire routine is well understood, and any point not clear may be brought out in discussion. With the decrease in the profit of market gardening, in common with all enterprises during the past five years, until the profits are near the vanishing point, economies are sought for, and it has seemed good to inaugurate an f. o. b. selling business, where the seller would confine his risk and realize at once on his crop, thus

eliminating all risk of transportation delay, decay, and bad debts from the calculations. F. O. B. sales are supposed to do this, and the grower is sure he is much the gainer by the plan, but I assert that the items mentioned—transportation delay, decay, fluctuation of the market, and bad debts are evils or factors that are all in the problem and *must be* met singly or in a bunch. The seller must (or in the judgment of the buyer at least) meet all these matters and pay for them by a reduction in the asking price. It thus becomes a matter of bargain, a battle of wits between buyer and seller, in which the trained professional buyer ought at least to be a full match for the tiller of the soil, with less opportunity of practicing and developing his propensities of trade.

The question of who shall pay the cost is clear in my mind. It must come out of the goods produced. As to the methods pursued in the sale of the goods by the commission merchant, that is another question that is fully understood. When f. o. b. sales are made the grower is no longer interested. Both methods have their advocates, and few will commonly consider the whole question, and it is unfortunate that so many will discuss the matter without regard to the general features of the question, but descend to unreasonable personalities by vituperation and reckless statements that show little knowledge of actual facts, when attacking the system of selling by agent and advocating f. o. b. sales.

A two column article read recently before an eastern horticultural society gave no clear idea of a practical solution of the question. The speaker said "sell everything at the shipping point if (sic) though you are compelled to leave your own station and haul five or ten miles to a station that has buyers is his one remedy against consigning." Possibly then the buyer will demand a profit for his part of the transaction, for he will hardly agree to work for nothing and then consign the goods thus bought. But it may be urged that the merchant who sells on the principal market will buy at the local station and thus it will not be consigned. In that case you must offer enough produce to pay the expense of keeping a buyer who will stay there to take your produce, and at a price sufficiently low to pay all expenses, *including* the risk already mentioned.

Having thus briefly touched on this point as to the difference between f.o.b. sales and consigning, let me add one other point—carefully investigate and decide on your agent or customer before you part with your property. Lock your stable door while the horse is still in it. It is much better than to reproach yourself after he is gone. Carefully investigate and decide on your agent or customer before you part with your property, if you sell having reasonable certainty that you will get your pay. In other words, sell to an honorable, responsible dealer, for as the conditions now are you are not compelled to sell your goods f. o. b. You have the option of consigning if you so desire. If you decide that it is for your best interest, and you are speculator enough to take chances of consigning, then you can make reasonably sure that you will have honorable dealing and correct business methods applied to any transaction that may be made for you.

The effort is being made to hedge about your interests in every possible way, and matters are so being shaped that by legislative enactment it is sought to make your interest entirely secure.

We can thus sum up this proposition: Produce the best possible fruit and produce within your power. Prepare your product so that it shall be attractive and taking and desirable in the eyes of the buyer. Use the best possible package. Study transportation problems carefully. Decide with good common sense on the method of disposing of your goods. Act fairly and honestly with your fellow men. Pass no hasty judgment on the motives and actions of others but carefully investigate the circumstances under which they work. Scrutinize carefully the character and ability of the men to whom you entrust your property. Practice strict integrity in all of your dealings and demand the same of those who are your agents. And while ideal conditions may not be reached, it is very certain that a great advance will be made in profitable marketing of fruits and vegetables.

Mr. Grout: I would like to have Mr. Barnett explain what he means by f. o. b. selling.

Mr. Barnett: The term f. o. b. selling is "free on board." We will suppose, for illustration, and confine it, a grower has ten boxes of asparagus to sell. That "free on board" is delivery at the cars or point of shipment. It is clean cut sale. The grower is the salesman. He places his price on the products and the purchaser agrees to pay that price. It is then sold free on board and all risk must be assumed by the buyer. And you will notice that I gave four different points that the buyer must assume and the grower is relieved of. I think that is clear. Now then, wherein comes the battle of the wits is this: Then the buyer is pitted against the seller. The buyer is supposed to know his business, as he is constantly in practice. There are men in business who do nothing but buy and sell, and they are more than a match in most cases for the farmer who has nothing to sell more than two or three months in the year.

Delegate: Mr. Barnett, you say, "God pity the man who is perfectly satisfied." I believe we are all looking after that perfect satisfaction, but we are not looking for God's pity for it. What is your point, or else you would not have made that remark?

Mr. Barnett: When a man is perfectly satisfied he will not try to do better.

Mr. Bill: This is our inning now, I believe. I just happened to think that one time I shipped one hundred cases of strawberries to Chicago. When the returns came I did not get enough to pay expenses by fifteen cents a crate. I would like to ask you how you can be sure. I kicked a good deal about that commission man. Some people claim the commission man gets everything. The question is, how can one be sure of honorable dealing through the commission man?

Mr. Barnett: How much did the commission man receive from the sale of the goods? That is the starting point. Now then, we will suppose that the freight and the commission on it amounted to fifty cents, the legitimate charges which you agreed to pay the man, and he only got forty-seven cents from the sale. Did he act honestly in reporting those facts? If he acted honorably and honestly by reporting those things, I claim that the man has been paid in full and has had his honest sale, although it was not a profit. All operations have more or less rules connected with them. Do not always expect that you will get a profit. You may put a great deal higher value on your labor than would be justified. The Legislature of the State of Illinois has passed a law making it a criminal offense to retain any portion of the proceeds of a sale on consignment. You can buy \$10,000 as a matter of debt, but if it is \$10 of commission goods it becomes a commission act and the Legislature has branded men as criminals when they retain any. Lock the stable door before the horse is stolen.

Mr. Bill: I couldn't do that.

Mr. Barnett: You could do that by care, by dealing with an honorable man. There is a society organized for that express purpose

and no man can get into that society unless his character is above reproach. You know there was a Judas among the twelve disciples, but he was kicked out, and that society is kicking out dishonest men and they are compelled by their fellows watching them to deal honestly, and if they make a sale they must show up every item straightforward and square. Now then, with this explanation, I think you will see that it is possible for every man to make a consignment with honest men.

Delegate: I want Mr. Barnett to explain how it makes a commission man a partner by selling.

Mr. Barnett: When he sells on commission, the greater the prices realized the greater will be his commission.

Mr. Hilff: Did you say that f. o. b. buying is a detriment to the farmer?

Mr. Barnett: I think I hardly said that. I did not intend to.

Mr. Hilff: I would like to know which is the safest way of dealing, by f. o. b. selling or through a commission man?

Mr. Barnett: That is an open question for all.

Mr. Wilmarth: Mr. D. C. Wagner, of Chicago, will address us on "Marketing Fat Stock."

Mr. Wagner addressed the convention as follows:

LADIES AND GENTLEMEN OF THE ILLINOIS FARMERS' INSTITUTE:—I will confess to you that this is a little higher up than I am in the habit of getting. I confess to a little embarrassment because of what I heard from the ladies here last night. I do not believe that I ever witnessed anything more interesting.

Why the exchange should have selected me to address you upon this important subject I am unable to account for. Perhaps it is because I am old.

The subject is one with which I have been identified from boyhood up to the age of three score and ten, save four years' service in our civil war.

In the treatment of this subject I shall confine myself mainly to the practical, leaving theory to adjust itself. If theoretical tests result beneficially, well and good, then we can, at the expense of those making them, get the benefit of their experience. Absolute and undeniable facts are what we desire; facts need no substantiation.

While I do not claim to be an expert in the treatment of diseases peculiar to live stock, I do know something about what goes to make the steer, hog or lamb a ready seller on the market.

First, breeding is the beginning of a perfect animal; inbreeding is at once the beginning of disaster and ruin.

There are four breeds that have taken front rank as beef makers in America, namely, Short-Horn or Durham, Hereford, Aberdeen-Angus and Gallo-way. These four are high up in all that makes the perfect beef, that is, when properly fed and ripened. The best judges differ as to the merits of each of the above mentioned breeds. It would be individous on my part to make a pronounced choice, yet I have never let go of my admiration for the Short-Horn. The beautiful symmetry of the well bred Short-Horn is beyond comparison and its disposition is very domestic.

The Hereford breed came to us later and for a time attracted paramount attention, and deservedly so, because of the faulty breeding of the Short Horn during the introduction of the Hereford strain.

As a matter of fact, the Hereford is possessed of a better and more rugged constitution and is a more liberal feeder than the Short Horn, but does not fatten so evenly, and is inclined to develop irregular fatty lumps when pushed beyond a certain limit. However, this is by no means objectionable for foreign markets where most of this class of goods are finally marketed.

The Pole or Galloway we shall not disturb as to merit. There is no distinguishable difference between them aside from long and short hair. Both are exceedingly rugged and possess great endurance and are especially adapted to this latitude, and if the identity is preserved in the breeding, they will always bear the test of competition.

The most successful feeder we ever had in his time was the late John Gillette. He was not a "herd book" man, but based his knowledge upon his own experience and results gained in actual practice. He was an independent operator in the exercise of his personal judgment. The history of his success needs no commendation at my hands. He demonstrated his capacity as a feeder by shipping to this market the first two cars of two year old steers that averaged 1600 pounds. This was marvelous at the time, but nevertheless he set the pace that was, to the best of my knowledge, unequaled during his lifetime.

If the institute could procure the history of John Gillette's method pertaining to breeding, feeding and handling live stock, it would be worth more to stock men than all the theories heretofore devised.

Now as to feeding. After you have procured stock cattle such as are worth feeding, you must have yards adapted to the essential wants of your stock, namely, commodious in area, slight altitude compared with surroundings, convenient and clean water, good, large and roomy storm sheds against north and west inclement weather. Hay and rough feed such as you may see fit to use (excepting of course damaged food of all kinds) should be fed from the sheds in racks. The capacity of the sheds can only be measured by the number intended to be fed.

Corn continues the standard for both cattle and hogs and is making great strides for supremacy as a food product for man also, but the latter wants it baked and ground fine and is not averse to the juice, while live stock seems glad to get it in any shape.

As far as the steer is concerned, I apprehend that corn properly soaked is of more utility in summer, especially early summer, than dry corn, because of the fact that the teeth or grinders of the animal become tender or susceptible about this time, and it tends to militate to a certain degree against the development of fat; however, if growth is what you desire to obtain, early grass will give it and will fit the animal for the later process of fattening and marketing. In breeding and feeding a strict observance of the details essential to success must be implicitly enforced. Meals should be served with as much regularity as your own. When you have a bred calf that should be a good one (and for some unaccountable reason is not), get rid of him. Perhaps some neighbor that thoroughly understands all the ills that animals are heir to will take him and possibly get some growth out of him, but you, as a practical farmer and breeder, can not afford to carry forward with your herd even a calf that would detract from your reputation as a breeder, feeder and marketer of live stock.

There are in our great State of Illinois a few live stock men that have preserved their reputation as painstaking breeders, feeders and marketers, and the identity of their stock is at once recognized by both buyers and sellers, and their shipments meet with a ready sale regardless of market conditions. There are times when competition is absent on the common to medium grades of live stock in the best of markets, but it is never so with well bred and finished cattle; at least such are the conditions that have obtained lately and promise to continue indefinitely. The supply seems inadequate to the demand for the better grades, especially so since the increased export demand absorbs about all of the cattle of the character above named.

Now, Mr. President, I take great pleasure in congratulating you and the distinguished gentlemen whom you represent. I am profoundly impressed

with the effort you are putting forth to readjust the wreckage that has come to us, caused by indifference and neglect in the last ten or fifteen years.

Illinois, great and glorious Illinois, you ought not to have permitted this. You ought not to have allowed one of the greatest industries, one of the greatest sources of state wealth and prosperity to sicken and deteriorate. Not so many years ago you were the champion live stock breeders, feeders and marketers in the world. No state in the Union approached you in quality and quantity produced, especially cattle and hogs. Is there any reason that we should lose our prestige?

The live stock men of the State hold the deciding card. Will you not rise up in the light of intelligent experience and development, and put behind you the faults of the past? To degenerate is not a sign of increasing intelligence. Are we to continue to suffer by comparison to our fathers? Let us once more become the champion state, and instead of following, let us become the leader and show the world what the great State of Illinois is capable of.

FEBRUARY 15TH, 1899.

Next in order is sheep, and I confess I am not authority in sheep breeding and culture, as my experience in the industry is exceedingly limited. I simply know a good mutton sheep when I see it, but I have never been engaged in its practical culture. I apprehend that it is a kind of business that is somewhat distinct from other live stock, because of its tender make-up, and can only be properly treated by a study of the character of the animal through experience, and this I have never had. To me it is an exclusive business and the immense development in this industry is conclusive evidence that we have men in the right place engaged in it.

The sheep industry of this country has grown in the last fifteen years beyond the most sanguine anticipations of the wildest prophets of the past. The magnitude of it has no precedent on this hemisphere, relating to live stock in this class. Twenty years ago 2,000 sheep in any one day virtually blocked the market. Now 25,000 are generally promptly absorbed.

Mr. President: Since my arrival here I have been interrogated as to "Best Markets."

This is a subject which we can not hope to discuss with a view to establish a fact of merit, abstractly, hence we must have absolute proof, in corroboration, which I shall endeavor to give you in favor of the Union Stock Yards.

First, Chicago of itself is a world-beater, a fact that inspires pride and devotion in the heart of every citizen of the great State of Illinois, and you must not forget that the Union Stock Yards are in the heart of this great city and have been, and without question still are, a great factor in the development of the huge business interests centered here. The industries connected with the yards are wonderful and can not be adequately measured by mere words; they must be seen and studied in order to get a realizing sense of the capacity afforded by the improved conditions that enable the management to prosecute successfully and promptly the vast business transacted at the Union Stock Yards.

I shall give you some figures in substantiation of my position. You will have made up your mind that I am a friend of the Stock Yards and in this you are right; not because of my location (while I am susceptible to local influence) but because I can conscientiously say, divested of prejudice, that the Union Stock Yards (all things considered) affords the most ample facilities for the proper handling of live stock of all kinds, in fact, exceeds the capacity of all the western yards combined. Then again, nothing comes to these yards that can not be sold, not so with all at other points. The figures that I have the pleasure to place before you will prove that much live stock is shipped from other markets to the Union Stock Yards of Chicago, and sold here.

Mr. Wilmarth: The next gentleman to address us is Mr. P. H. Sprague, of Chicago, on "Marketing Poultry."

Mr. Sprague addressed the convention as follows:

No farmyard is complete without its flock of poultry, though not one man out of one hundred among those you meet in the daily walks of life has anything like a proper conception of the magnitude of the poultry industry of this country, and the money earning capacity of the much berated hen. This is true for several reasons, among which may be named the fact that poultry growing and "hen farming" has been looked upon as a very small business and one entirely beneath the dignity of the average farmer. He has been content to pull along with the growing of grain crops, live stock and dairy farming, but he has always regarded the hen as a nuisance, and even grudging her the small amount of grain she picked up around the buildings. He has always looked upon hen farming as being entirely beneath the dignity of an able bodied man, and accordingly has turned the poultry operations over to the "women folks" and the children.

Thanks to the stringent times that have fallen upon us in the past several years, this same man sees things differently now. When the condition of affairs brought about a stagnation and consequent reduction in the value of his products; when grain of all kinds fell below the actual cost of production; when live stock could not be sold for the value of the food they consumed, and when dairy products were so low that he abandoned the business, he cast about him for something that would bring in some ready money; something that would help to pay the taxes and interest; something that would help to lift the burden under which he was groaning and from which he had little hope of escape. At this point he observed for the first time that he was carrying a good many eggs to town for his good wife, and he also noticed that eggs and poultry sold readily, and that there was a perpetual market at a cash price. When he stopped to figure the cost of care and maintenance of the flocks he discovered that his hens were earning more money in proportion to their cost and care than any live stock he had upon the farm, and that there seemed to be no limit to the demand for their products.

Soon honest, sober reflection led to conviction, and the result has been more hens of better breed, better houses, better care, and for the first time in the history of the country, the insignificant hen has taken such position in the minds of the people as her intimate and indispensable relation to our domestic economy demands.

For the benefit of those who have not yet decided upon making this change we wish to submit a few figures for careful study and comparison. The latest and most authentic report of the hen and her product and their value are to be found in the census reports of 1890, from which we draw these figures: In that year we had in the United States 258,871,125 chickens and 26,738,315 other fowls. In the same year the egg product from chickens numbered 9,836,674,992. Figuring on the increase between 1880 and 1890 as a basis, we have a right to assume that in 1897 we have 350,000,000 chickens which will produce 13,750,000 eggs. Counted at the average price for eggs during the past year, these eggs will bring to the poultrymen and farmers \$165,000,000, while the sale of poultry for table consumption, at a very conservative estimate, will equal \$125,000,000 more, making a grand total of \$290,000,000 to be placed to the credit of the little hen. If we assume that each hen is worth 30 cents, which we think is quite a conservative estimate, we shall have \$105,000,000 as the value of our hens, which added to that of her \$290,000,000 of product, brings her value and that of her product up to \$395,000,000. Why, all the cows in the country only amount to a total value of \$264,000,000 in round figures. The hen annually earns more than the total value of the wheat crop, more than the total value of the cotton crop, and is still clucking cheerily away as if she had done nothing remarkable after all. Do not despise the hen. Do not look upon her as being beneath your dignity and consideration. Heed the advice of your good wife, who knows more of hen values than you do. Give better care, better housing and more comfort to your hens and they will take care of your balance in the bank.

Great as the products of the hens, as has been indicated in the figures produced above, they might have been nearly or entirely doubled if the proper

system of care and feeding has been employed. Nearly every farmer in the country is more or less acquainted with what are known as complete or balanced rations. The experiment stations and the live stock and agricultural papers have been educating him along these lines for years. He has been taught the requisite proportion of proteids, albuminoids, carbohydrates, etc., and their combination for producing the most milk, the most and best pork, the finest and earliest developing beef, lamb, mutton, etc. Much of the success the farmer and feeder has had in the past several years of great stringency has been due to this knowledge. While all this has been going on the hens have been obliged to live upon the offal from the kitchen table and the small amount of grain the farmer could, by the pleadings of his wife, be induced to give her. It is quite fortunate that all men have not been alike in this respect, and that while the majority have ignored poultry entirely others have been working industriously to produce better results and to arrive at certain fixed principles in the feeding and handling of hens. Profound thought and study have been responsible for improved methods in handling, feeding and marketing poultry and poultry products, and fixed rules have now been laid down, the careful observance of which is sure to produce good results.

It must not be forgotten that hens have no teeth and that their food is masticated in the gizzard. Nature prompts the hen to pick up and swallow gravel, glass, small shells and other substances, but it may be noticed that they prefer articles that are sharp or irregular. Round bits of gravel do not serve the purpose well, though better than nothing, and Mica Crystal Grit is the best substitute for teeth that can be given to the hen. It not only grinds the food but furnishes silica, aluminum, iron and magnesium to the fowls as nature demands them. All animals consume more or less lime in some form. It is one of the principal elements entering into the composition of the bones. The domesticated hen also needs more of it than wild stock of any sort, since she is stimulated to a greater production of eggs. In consequence we must give her more than she usually picks up in her food. The most serviceable form in which to give her lime is in the shape of coarsely ground bone and oyster shells. Feed the articles most abundantly at the time when the hens are laying most freely, and anticipate, if possible, by feeding early in the season, lest your fowls eat a shellless egg and thus acquire a bad habit. The importance of providing a liberal supply of ground bone and oyster shell for fowls is less understood than it should be by breeders of poultry. They should always be at hand in the poultry yard where the fowls may supply themselves at will.

Plenty of fresh water is a necessity in successful poultry raising. If the hens are not within easy reach of a running stream of good, clean, cool water, then they should be supplied at all times from a stone jar or trough so arranged that they may not get their feet into it and foul it. In preparing their food rations corn should have a prominent place. It is a most easily digested grain and forms a good basis for egg production. I believe that one-third of the food should consist of corn; another third of wheat and the balance either of meat or green food, such as boiled clover, cabbage, turnips, potatoes, etc. Clover is a healthful stimulant and should be used freely, though it is important to have frequent changes in the diet. Eight or ten per cent of meat should be fed to supply the necessary nitrogen in the balanced ration. Both green feed and meat are necessary to perfect egg production. Where they are deficient it will be found that the eggs will not hatch at all or will produce only weakly, spindling chicks.

Poultry not only requires the right kind of food but also must be sheltered in a good, warm and well lighted house. If possible in building poultry houses they should be placed on a slope facing the south and have as many glass windows in them as possible in order that the hens may have plenty of light and sunshine. In order to avoid disease the houses must be kept clean and free from vermin. They should be thoroughly whitewashed two or three times per year. The worst pests among poultry are lice and mites which can be easily gotten rid of by a liberal use of Pike's Lice Destroyer. If sprinkled on the floor, nests and roosts it will exterminate chicken lice which are so

fatal to the little chicks. Hens will not lay and neither will poultry fatten when covered with vermin. If a success is to be made in the poultry business the houses and roosts must be kept clean.

It does not pay to raise mongrel stock. No one is justified in wasting time on mongrels. It is the same with poultry as with horses, cattle, sheep or hogs. The most money is to be made with thoroughbreds. It costs no more to raise pure-blooded fowls than mongrels, and if you already have a stock of common poultry you should sell off the roosters and buy full-blooded ones all of one breed from your neighbor, and thus gradually improve the stock.

Now in regard to marketing, the best kind of chicken for the market is a plump fowl with yellow skin, such as the Plymouth Rock, Wyandotte, Light Brahma, Leghorn, or, in fact, almost any chicken with light feathers. Stock of this kind dresses out yellow and always will bring the top of the market. Dark feathered poultry when dressed out has a dark blue skin and it always sells at a lower price than light colored stock.

The best breed of chickens for broilers is Plymouth Rock, Wyandotte and Light Brahma. The chicks should be hatched in January and February.

It is hard to get hens to set in winter and is almost necessary for the farmer to use incubators to raise broilers in time to bring the best prices. The incubator on the farm is being brought to more profitable use every year. There is no doubt that the incubator and brooder method of raising chickens is a wonderful improvement on the hen method. It is cheaper and a greater number of fowls can be raised from the same number of eggs. Hens can be made to lay nearly double as many eggs if they are not required to set, and it is a good plan to use incubators instead of taking the hens from their work. The incubator is no longer an experiment. There are several first-class machines on the market and no mistake can be made in buying any one of half a dozen leading machines which are guaranteed to give satisfaction.

The breed of turkeys raised does not make so much difference as the breed of chickens. Any kind of turkey will bring the market price if it is plump and fat, although the Bronze seems to be the best all-around breed, and the blooded stock will fatten more quickly and at less expense than the common run of fowls.

In raising ducks never keep anything but white feathered stock. The Pekin duck is the best and always brings the top of the market.

With geese only the largest breeds should be kept. The Toulouse, African, or any other large breed is all right and it costs no more to raise a large bird than a small one. The market is never overstocked on large, fat geese.

The best season in which to sell chickens is from the first of January to the first of November. Every farmer seems to want to dispose of his poultry during November and December, and consequently the market is always overstocked at that time. The surplus young roosters should be sold during September and October, as they will bring more money then than later. If it is impossible to market them until after that time it is best to hold them until after the first of January, for prices are always low during the intervening months. Turkeys are most salable around the holidays. Old turkeys and large young gobblers should be marketed for Thanksgiving and Christmas; poor stock should never be sent to the market; all should be well fattened before being shipped. The hens and young gobblers should be kept until after the holidays but should be marketed by the first of February.

Capons sell best from the first of January to the first of March and generally bring from 8 to 15 cents per pound. The larger they are the higher price they will bring per pound. Birds that weigh less than 7 pounds each will bring no more than the price of common chickens.

Live geese sell best in September and October and dressed geese any time after the first of December to the first of March. There is no particular season in which to sell ducks. Broilers bring the most money from the first of March to the first of July, the highest price being obtainable from the middle of April to the first of June. They sell by the dozen from the first of March until about the first of July and the remainder of the season by the pound.

They generally bring from \$3.00 per dozen the first of March to \$6.00 or \$7.00 per dozen during April and May. About the first of July they will, as a general thing, bring from 20 to 25 cents per pound, the price gradually going lower. Chicks should weigh from 1½ to 2 pounds each the first of March and as the season advances from 2 to 2½ pounds each. They should be shipped alive from the first of March until the first of November.

In dressing capons they should always be drypicked and feathers left on the neck, wings, legs and rump and the tail and wing feathers should be left in. Do not dress out any capons that weigh less than 7 pounds each. Keep the small ones until they grow a little heavier.

Before dressing poultry it should be well fed and watered and then kept twenty-four hours without feed previous to killing. When stock is well watered it looks brighter and adds to its appearance. Full crops injure the appearance and hurt the sale of poultry. Never kill poultry by wringing the neck of the fowl. Bleed the bird in the mouth, leave heads and feet on, and do not remove the intestines or crops. In scalding chickens the water should be as near the boiling point as possible without boiling. Hold the bird by the legs and head and immerse, move up and down three times. The feathers and pin feathers should be removed immediately without breaking the skin. Then plump the bird by dipping it for ten seconds in water nearly or quite boiling and immediately after into cold water. Hang it in a cool place until the animal heat is nearly out of the body. To drypick chickens properly the work should be done while the chickens are bleeding. Do not wait until the bodies get cold. In dressing turkeys observe the same rules as in dressing chickens except that turkeys should be drypicked, as they command a better price than when scalded. Ducks and geese should be scalded in the same temperature of water as other poultry, but it requires more time for the water to penetrate and loosen the feathers. It is sometimes necessary to wrap the carcass in a piece of old carpet or burlap for a few minutes and allow it to steam. Do not drypick geese and ducks before killing for the purpose of saving the feathers as it causes the skin to become very lumpy and inflamed and is a great injury to the sale of the stock. Do not singe the bodies for the purpose of removing the down. Poultry can be shipped in any kind of packages, either barrels or boxes. The appearance of the poultry has more to do with the sale of it than the kind of packages in which it is shipped.

In selecting a shipment of poultry for the market the farmer will find it to be of advantage to have his birds of uniform size. They look better and neater and will bring a higher price. If the birds are tied together in pairs by the necks, always select two that look as much alike as possible. Pack them neatly, for appearance has much to do with finding a market for them. Handle the carcass so carefully that the light outer skin will not be broken. The shiny under skin showing through in spots detracts from their appearance.

There is one thing which farmers generally overlook and that is the saving of the feathers, especially those of the turkey. At present first grade feathers will bring the following prices: Turkey tail feathers, 36 cents per pound; wing feathers, 25 cents per pound; body feathers, drypicked, 5 cents per pound. Chicken body feathers, drypicked, 5½ cents per pound. Goose and duck feathers, from 25 to 45 cents per pound according to the quality. While it might not pay to save feathers from a few fowls, it undoubtedly would pay well where a large number are dressed out, and thus the fowls would contribute their item to the poultry fund which is fast becoming such an important factor on the farm.

The Chairman: Are there any questions?

Delegate: I would like to ask the gentleman a question. He says the time to hatch chickens is January or February. Take this last year, where is a man going to get the eggs to set them?

Mr. Sprague: Keep the hens in warm houses and they will lay all winter.

Delegate: You say not to singe the chickens. Why?

Mr. Sprague: Because they will be greasy.

Delegate: Singe the chickens in alcohol and they will bring better prices.

Mr. Sprague: I never heard of that. If they are greasy they will not bring good prices.

Mrs. Rorer: As a woman, and coming from a market where chickens bring the highest prices in the world, I would like to compliment the gentleman on his alcohol treatment. When so singed they are the best and bring the highest prices.

Delegate: I would like to know why live chickens are always quoted at same prices on same day, that is, good, bad and indifferent? Is it not the commission man's fault?

Mr. Sprague: No, sir, it is the poultry man's fault.

Mr. Kerrick: I have been farming a good while and have raised almost every kind of stock successfully, in my estimation, at least; among other things I have raised hens largely by buying the eggs for setting. I would like to know how to get a hen to lay an egg when you want them?

Mr. Sprague: Keep them in good warm houses and take care of them.

Mr. Kerrick: I have done everything I could. I have even watched them when they go out to see that they didn't get their feet wet, and yet I never had a hen that would lay an egg.

Mr. Sprague: You kept them too busy; they didn't have time.

Mr. Wilmarth: I am very sorry to announce that Mr. John Newman is ill and unable to be with us to give us his address, but Mr. Rankin has kindly consented to read Mr. Newman's paper on "Marketing Dairy Products."

ELGIN, ILLINOIS, Feb. 4, 1899.

Hon. Charles F. Mills, Secretary and Superintendent, Springfield, Ill.:

When your secretary wrote asking me to prepare a paper for your association on "Marketing Dairy Products," it struck me as being somewhat out of place for your meeting, but on second thought, realizing that the quality of our produce had much to do with marketing of dairy products, that this was just the time and place to go into the subject.

Dairying, in our State, with its natural adjuncts on the farm, such as poultry, and in their younger days, calves and pigs, places the dairy products in value way above any other line of product in our State, hence the marketing of the same becomes very important, and we can not give it too much thought and attention.

We will probably all agree that the best market is the home market, providing the produce to be sold can all be consumed at home. But as our country has developed so rapidly and with the good things, (evil also,) and in the dairy line the evil most prominent is butterine. By reason of this "wolf in sheep's clothing" we have been obliged to seek an outlet for some of our dairy products outside of our own country. Thus it is with dairy products as with all other commodities, what the surplus will bring in a foreign market will regulate the price at home for what is used in this country, hence you get at the basic principle of commerce, and the natural law of

supply and demand, which rules prices. This being the case, the quicker we get the surplus off our hands and out of the country, the better market it leaves for the balance. This fact has proven itself in the dairy line in the past two years; during the summer of 1897 there was exported weekly large quantities of fine butter, and the statistics show us that although we sold the surplus in the summer months at $14\frac{1}{2}$ cents, still the average price for the year was 21 3-5 cents, while during 1898 the price of the summer goods was held in this country above what exporters would pay, namely, 16 cents, yet the average price for the year was only $20\frac{7}{8}$ cents, and the market now in the dead of winter is sick at $18\frac{1}{2}$ cents for the finest creamery butter, with summer butter in the refrigerators of the larger cities almost unsalable at the summer price, leaving the carrying charges and shrinkage a loss to the purchaser. I do not wish you to understand that the holding of the fine summer butter in this country is the sole cause of the stagnation in dairy goods. The fraud butterine has more to do with it, for, clothed in its natural garb, it steals its way into the stomachs of the people, a large majority of whom pay for butter but get lard colored to resemble butter, hence we are deceived. The agents of the stuff will tell you it is the friend of the laborer and the poor. If such is the case, why not see that they get it for 9 cents per pound or less, for Mr. Armour's sworn statement was to the effect that to make it and pay the 2 cent revenue tax it cost less than 7 cents per pound, and 25 per cent profit on any commodity is a good margin from the manufacturer to the consumer. I would advise every man to write to his representative, senators and congressmen, asking them to vote for bills that will protect the dairy industry and make it some one's special business to see that the laws are enforced. We have no fears of butterine affecting the sale of dairy products when it is eaten for just what it is. When hotels, restaurants and boarding houses show to their customers that they use lard in place of butter their patronage will dwindle, for in most cases their patrons pay for and expect butter, but are deceived. The farmers can help in this battle of Honesty vs Deceit, by making butter that will always grade extra, or if adjacent to a creamery, see to it that only pure, clean milk, properly cooled, is delivered to it so the creamery man can turn out the finest grade of butter. The demand is always for the highest grade, and most of the poor quality of butter and cheese made is on account of poor flavor, and this loses to the business annually thousands of dollars, and in a great many instances is traceable to the careless, dirty way that some milk is delivered to the creamery, and which could be remedied by a few minutes' time, and attention to the milk after it leaves the cow's udder until it is delivered, and, while ninety-nine may deliver their milk properly the one-hundredth may contaminate the whole, hence it is necessary to all work together and help each other and be watchful of your neighbors' interests as well as your own, to the end that Illinois shall turn out the best dairy products of this country, and America lead the world.

In marketing the product of this vast industry, we find the buyer very critical and not only must the quality of the goods be right, but the package and general appearance attractive, and by reason of Elgin adopting the highest quality as its standard in the butter world, do we lay our success; and buyers from all over the world are attracted to the Elgin Board of Trade, until its sales have increased from \$81,000 in 1872, to nearly ten millions of dollars annually. Now, whether your individual district is tributary to the Elgin market or not, you feel its influence, and it is a benefit to you as well as to the whole dairy world, and those of us who are fortunate enough to be a part of it feel proud of belonging to an organization that has done so much for the country in the marketing of dairy products.

We believe the best time for the seller to get the best value for dairy products is when the buyer wants them, and when Europe will take our goods at a fair value in summer time, we believe it good policy to let them have it and take it out of the country, and so let the money come into the country in place of it. We have demonstrated that we can make what they want and pack it as they want it; they are also quite willing to trade with us. This would leave our market cleaned up, and fair prices would rule the balance of the year. Our large markets of this country are the big cities and commis-

sion houses handling the dairy products, either on commission or by direct purchase based on the Elgin weekly market or their own market the day the goods are received. The Elgin market has proven the best for the seller. There are sharks in all lines of trade, hence when shipping on commission, look up a reliable firm in the city you desire to ship to and possibly save the price of a whole shipment. The 60-pound ash tub is the usual style of package in which the butter is packed and cheese are made about thirty to forty pounds each, packed one or two in a box, as demanded by the purchaser. It is a good rule to give buyers (the people) what they want, and when you have found out their ideas and cater to them, you will have solved one of the greatest problems in the marketing of the dairy products.

The past year or so, the one and two pound prints have grown in demand wonderfully, and in the near future most all the finest butter will have to be put up in that shape, nicely wrapped with parchment paper, with the name of the manufacturer printed on it, and if it is extra quality, the purchaser will demand that brand. Goods well made and attractively packed are half sold. Never print or stamp your name or brand on your butter if you find it is not up to the standard or extras when going to your regular customers. Send it to a good commission house and thereby keep your brand on top and get the top price.

Yours most respectfully,

JOHN NEWMAN.

WEDNESDAY, FEBRUARY 22, 1899.

AFTERNOON SESSION.

Hon. A. P. Grout, Chairman.

Vocal solo, Miss Margaret Streeter, Princeton.

Mr. Grout: Ladies and Gentlemen:—I feel very much flattered in having been requested to preside at the most important session of this annual meeting, for you concede that there is no more important question confronting us, as farmers of Illinois, than that of live stock. Not altogether because it will pay more particularly now than in the past, but on account of restoring and maintaining the fertility of the soil. That is a question the farmers are bound to meet sooner or later, and I know of no other way to solve that question than by the use of live stock.

The first question on the program to be discussed this afternoon is "Better Live Stock for Illinois," (and I hope the time will not be far distant when there will be more of it.) I have the pleasure of introducing Prof. Eugene Davenport, Dean of the College of Agriculture of Urbana, Illinois.

BETTER LIVE STOCK.

We breed animals and feed them in order to secure certain much needed articles that are not found in nature and that can not be produced in factories, viz: labor, meat, milk, wool, hair, bristles, hides, and a multitude of useful things that arise from residues. The domestic animal is therefore a machine, a manufactory for constructing these commodities out of the corn, oats, bran, hay, fodder, straw, etc., that we produce upon our farms.

Now it is a general principle that all machines are extremely wasteful of raw material so that the finished product represents but a fraction of the ma-

terial and the energy consumed in its making. It is a good engine that converts 10 per cent of the power of the coal into the particular form of work that is desired, and the other 90 per cent is wasted. We say that the engine has an efficiency of 8 per cent, or 10 per cent, not according to its consuming power, but according to its converting power. No machine has ever been invented, and probably none will ever be devised, that can convert all the power of the coal into a prescribed form of energy as motion, light, or electricity. Most of the energy will be dissipated as heat, and that loss is the penalty we pay for the transformation.

The finished corn crop represents but a fraction of the materials provided in soil and air, and of the vast quantities of potential energy rained down upon it by a generous sun. The same is true of oats, timothy, clover, and of every crop we shall ever raise. We shall never have a crop that will turn out the finished product without great loss of both material and energy.

These animal machines follow the general law and return but a tithe of the materials they consume. We shall never have an animal that will return us all the material of our corn and hay in the form of beef. We shall never have a breed of cows able to convert all their feed into milk or butter. These machines are living things and they have needs of their own that must first be satisfied.

In a state of nature these animals produce for themselves the same products that we now require them to produce for us. All we have done is to induce them to take a little more food and to manufacture for us an excess of their natural products. In the meantime their own needs have not decreased and they must be first supplied.

The stockman keeps his animals not for what they can consume nor for what they can ultimately produce, but for what they can reconstruct out of a given amount of food. In other words, he keeps them for profit, and this profit will depend entirely upon their efficiency as machines.

And so it is that we need to know what are the legitimate needs of the animal, what proportion of our feed is commonly returned to us, and what differences there may be in the efficiency of different individuals that are supposed to be doing the same work. Time was when food consumption or final weights were accepted as the gauge of efficiency, but recently we have come to know that profit depends not on the amount of food consumed nor upon the total product, but rather upon the relation between the two, and careful experiments have been conducted to learn what proportion of our feeds different animals are able to return to us.

At Michigan Agricultural College ten years ago the writer fed off a bunch of steers of different breeds from calfhood until ripe for the butcher. Two of them were of the same age, but of different breeds, Galloway and Holstein-Friesian. One, the Holstein-Friesian, made a pound of beef for every seven pounds of mixed grain together with roughness, while the other, a Galloway, made a pound of gain for every 6.08 pounds of grain, or on 15 per cent less feed, and it was vastly better beef. Two others of the same breed, Hereford, but of different ages, and of different types, differed also in efficiency. One made a pound of gain for every 6.48 pounds of grain and the other for every 4.56, or 42 per cent less. This was also 53 per cent better than the Holstein-Friesian just mentioned. These differences are far greater than any expected margin of profit in the feeding yard. They teach that the range of efficiency in meat production is wide enough to cover several profits.

One of our students, Mr. Hall, has conducted a pig feeding experiment for his senior thesis, and has succeeded in making a pound of gain for every four pounds of corn consumed. At one of the best institutes I have attended this winter it was agreed that about one of gain to seven of corn is a good average. If that be true then something is wrong, for if an efficiency of 25 per cent is possible then one of 14 or 15 per cent will not suffice. The price of pork will ultimately be fixed by the higher efficiency, and methods that once succeeded will begin to lead to loss.

The University of Minnesota kept accurate records of its herd of 21 cows for a full year with the result that the cost of a pound of butter at the ruling prices for feed at that time varied with the different animals from 8.6 cents to 14.2 cents. With higher prices for feed these figures would be increased, but as the different cows consumed the same feed the relative positions would be maintained. Here is a difference of 65 per cent in the cost of feed for a pound of butter. Is there 65 per cent profit in feeding for butter, or should one of these cows be discarded? Before answering hastily you must know that this cow of lowest efficiency produced 275 pounds of butter within the year, or more than double the yield of the average cow of the United States. Of the 21 cows seven were below the average and fourteen were above. The average cost per pound of butter for all the herd was 10.6 cents. The average of the seven cows of lowest efficiency was 11.8 cents per pound, and the average of the 14 of the highest efficiency was 9.8 cents, or over 20 per cent less. Is there 20 per cent profit in feeding for butter, and what should be done with the seven cows of low efficiency? They ought not to be hastily condemned because their average yield of butter for the year was nearly 320 pounds, or nearly $2\frac{1}{2}$ times the average for the United States. Surely if these differences exist among animals of this grade there is yet abundant room for improvement of our common stock.

Records were kept for an entire year of all the 20 cows of the herd at the New York experiment station at Ithaca. This herd consisted largely of native cows, and by careful breeding the average annual yield for the herd had been increased from 3,000 pounds to 7,000 pounds, or more than doubled within the space of 17 years. Such was the history of the herd up to the time the experiment commenced. That they were good cows is shown by the fact that the average yield of fat was 285.62, or over 330 pounds of butter per cow, and just half the herd was four years old or under.

Of this herd Glesta and Freddie were of the same age and breed, and were fresh within fifteen days of each other. Glesta made within the year 224.71 pounds of fat while Freddie made 417.97, or 86 per cent more on but 12 per cent more feed. Not only that, while the one made one pound of fat for every 22 pounds of dry matter of feed the other required 36, a difference of 63 per cent, or, stated in terms of money, where one made fat for $12\frac{1}{2}$ cents per pound the other made it cost 21 cents.

Some good people believe in selling cows before they reach much age, thus keeping the herd young. I find that the ten cows of this herd that were over four years old made butter fat for 14.9 cents per pound, or one pound for every 25.8 of dry matter, but that those that were four years old and under required 31.9 pounds of food for a pound of butter fat, and made it cost 19.1 cents per pound, or over 23 per cent more. The difference must be all due to age because the herd was rapidly improving, and it must be that the younger animals were naturally the better ones. Let it not be forgotten that here was a herd whose annual output had doubled, one which did not contain a single poor animal and yet that showed more than 60 per cent difference in efficiency.

At the University of Illinois three cows, all mature, were fed the same feed in the same proportion as between grain and roughness, but in amounts to suit the appetite. The experiment was performed for another purpose, but results are of interest here, though not strictly comparable, because at the beginning of the experiment Lady Pietertje had been in milk for 116 days, Eva for 54 days, and Rose but 18 days. The experiment began March 1st and lasted for 80 days.

Roughly speaking, Eva made 326 pounds of solids, or one pound for every 8.7 pounds of dry matter of feed. Lady Pietertje, though two months longer in milk, made 396 pounds of solids, or one for every 7.6 pounds of dry matter of feed, or over 14 per cent more. Rose, who was nearly fresh, made 601 pounds of solids, or over 230 pounds of butter in 80 days, or nearly four pounds per day. This was at the rate of one pound of solids for every 5 of feed, an efficiency of 20 per cent, or 74 per cent better than Eva. This cow lost weight while both the others gained, which must be counted, as well as the difference in lactation; yet both fail to explain these enormous differences

which are inherent in the cows as a matter of constitution, for the cow that made 601 pounds of solids ate slightly less food than the one that made but 396.

At the World's Fair dairy test 25 Jerseys were eating the same feeds in nearly the same proportion. The cost of food for the several cows for the 90 days of the test varied from \$19.27 to \$27.13, a difference of \$7.86, or over 40 6 per cent.

But the value of the products at the scale agreed upon varied from \$64.06 to \$95.11, a difference of \$31.05, or nearly 50 per cent, and the difference between cost of food and value of product varied from \$41.61 to \$69.59, a difference of \$27.98, or 67 per cent. It so happened that the cow that ate the least also returned the least profit, but the cow that returned the largest profit ate per cent less food than the highest.

Of this lot two cows ate food costing practically the same, viz: \$25.51 and \$25.49. But of these two, one produced \$84.75 and the other \$95.10, a difference of \$10.35, or 40 per cent as an investment of \$25.00 and a cow for 90 days.

Of the 74 cows of different breeds the differences between the valuation of product and the cost of food consumed ranged from \$24.74 to \$73.22, or nearly 300 per cent.

Here are differences in efficiency running from 15 per cent to more than 100 per cent. Moreover, these differences have been found among what are counted excellent specimens. What they would be if the best of these were to be compared with the ordinary scrub I leave to your imagination, but a close study of these and multitudes of similar records can not fail to convince us of the truth of certain principles, among which are the following:

First:—All variations in efficiency directly affect the profits of feeding.

Second:—These variations are many times a fair percentage of profit in any industry.

Third:—The variations found between what are counted as excellent specimens show that the limit of efficiency has not been reached, and that there yet remain great possibilities in selection and judicious breeding.

Fourth:—The wide variations between animals of relatively high efficiency suggest that a large proportion of common stock is fed at a loss.

Fifth:—It is almost certain that in time the better breeders and feeders will avail themselves of the best attainable animals, and that then the manufacture of animal products can be cheapened and still return a larger income on the investment of feed and capital.

Sixth:—As prices fall the differences between good animals and ordinary ones grow relatively greater, and as that time approaches God pity the unprogressive farmer with his unimproved live stock.

Seventh:—The student of these matters can not fail to be convinced that for an indefinite time to come the breeder's art will lie at the foundation of successful American agriculture.

These differences can not be tolerated, they are too wasteful. We are producing too many bushels of corn and tons of hay for nothing. These losses are too great, this machinery is too cumbersome and its efficiency is too low, because all the profits are in the margin between intake and output. We are engaged in a business which, from its very nature, fails to recover but a fraction of the material invested, and such business is hazardous unless the efficiency of the machine be high.

We can not know too much about the upper limit of efficiency as it has been attained in the best animals because that is that which sets the mark for the breeder.

The best cows of the New York herd produced a pound of fat for every 17 pounds of dry matter of feed. This is an efficiency of nearly 6 per cent for fat, or 18 per cent for total solids, which is remarkably high as compared with the engine, and shows that the cow is capable of very high efficiency. But

the poorest developed cow of the herd required 36 pounds of feed for one pound of fat. This is an efficiency of less than 3 per cent for total solids, which is less than half that of the better cow. Out of both must come the cost of feed before there is the possibility of profit, and if an efficiency of 3 per cent will still yield a profit, then what about one of 6 per cent?

The cow Rose made a pound of solids for 5 pounds of feed, an efficiency of 20 per cent for solids, or nearly 7 per cent for fat, but it was beyond her capacity to convert because she lost weight. If her efficiency had been as low as that of the poorest cow of the New York herd, and if she still produced the same fat that she did produce for the 80 days, it would mean that she would have consumed 144 pounds of feed per day, over half of which would have been grain. This being an utter impossibility, we are convinced that she must be an animal of more than ordinary power in converting feed into milk and butter. These records tend to fix the efficiency to be aimed at in breeding because they show the possibilities of the cow.

Not enough experiments have been conducted in horse feeding to eliminate the individual differences, hence there are wide variations in results, as we should expect after a study of the records of cattle feeding.

Wolff's experiments showed that the maintenance ration was about three-fifths that required for heavy work, while Grandean and Leclerc found that with three horses the ration required for maintenance varied about nine per cent.

Experiments show that a day's labor of a 1,100 pound horse is not far from 5,000 foot tons, while his ration will require digestible food containing about 35,000 foot tons of energy, or 7 of digestible feed to one of work. If this feed be composed largely of grain with a digestibility approaching 90 per cent he may do the 5,000 foot tons of labor or 40,000 foot tons of feed, indicating an efficiency of $12\frac{1}{2}$ per cent, but if half the ration consists of coarse food, which is less digestible, he will require not less than 50,000 foot tons and his efficiency on this food will drop to 10 per cent.

Wolff's investigations show that with the best grains and during moderate work the best horses may return 25 per cent of the energy of their foods, but he must have experimented with most excellent specimens. In these investigations we need more data to eliminate the individual differences which are doubtless as great among horses as among cattle, and for obvious reasons.

We have developed the horse far beyond his efficiency in the wild condition. He can run faster and farther, and can carry more and pull more than could his wild progenitor. We have developed him until he is stronger in all his parts, yet so carelessly is he often bred that his back can not endure what his legs can pull, and he breaks down in the middle; or else his hock can not withstand the terrific leverage of improved muscles attached to a pelvic bone that is rigidly anchored to the back, and the hock goes down.

Is it not evident that better live stock are entirely possible? More than that, that they must come before farming can yield its highest profits? Is it not evident that we are producing enormous quantities of grain and forage that do nobody any good, but are sacrificed on the altar of inefficient live stock? While these conditions last we have pressing need of great breeders, men of genius, means, and determination that can and will establish herds of the individuals of highest efficiency, and systematically produce males of the highest quality for general use, in order that the highest possible degree of efficiency may be diffused among our common herds. Do you wonder that the writer is an advocate of grading for the general stockman?

Mr. Grout: The next paper for discussion this afternoon is "The Sale of Pure Bred Stock" by Mr. Fred H. Rankin, secretary of Illinois Live Stock Breeders' Association, Athens, Illinois.

Mr. Rankin delivered an interesting paper, as follows:

THE SALE OF PURE BRED STOCK.

By Fred H. Rankin, Secretary Illinois Live Stock Breeders' Association,
Athens, Illinois.

In an old city of Italy, the King ordered a bell to be hung in the public square, and called it the "Bell of Justice," and declared that any one who should be wronged would ring this bell and the magistrate would quickly assemble to do them justice. The old bell hung there so long that after a while the rope rotted away and a grape vine twined around it and took the place of the rope. Suddenly one day, the old bell rang out. The magistrates assembled there and found an old starving horse. In trying to eat the grape vine, it had rung the bell. The bells ought to be rung, ladies and gentlemen, not for one class only, but for the whole world, the whole animal kingdom. I appear in the interest of our pure bred stock and the sale thereof and would ask you to redress their grievances.

It is said that nature holds for each one of us all we need to make us useful and happy, but she requires us to labor for all we get. In other words, it takes lots of genuine grit to conduct a stock farm. The American stock breeding ranks are in need of a strong, determined set of men who have a knowledge and love of the business, are possessed of honesty and good judgment, who will cull their herds closely and judiciously advertise their business. Men who possess these qualities and will couple therewith lots of energy and economy can find the markets of the world before them, and their success will be as unlimited and sure as taxes and death.

It is especially important to make a profitable outcome of any business that we first familiarize ourselves with all its details. Whenever you see money made in any business it takes an extra effort to get it.

Success in the breeding and sale of pure bred stock must be worked out the same as any other.

Men of brains push and perseverance get there; the others—and I pity them—get there too, but they are a long, long time on the road, and the pie and cake, the peaches and cream are all eaten up before they reach the goal.

The fact that one man will make a complete failure in the stock business while another takes the same business in the same place and under the same circumstances, and makes a complete success, plainly indicates that there is something in men as well as methods. In the majority of cases there is more in the man than in the business.

Hundreds of men have started in the business of breeding pure bred stock; they buy, breed and sell anything in which there is a profit. In a short time they realize that to sell pedigreed stock the reputation of the breeder must be a guarantee of the value of the pedigree and the breeding qualities of the animal sold. Their expectations never materialize, they fail to reap the profits they expected, and they soon vanish from the business like so many bubbles.

The breeder of improved stock must love his occupation; it should be the inspiration to him of a noble calling. Breeders of pure bred stock should not become mere traders, but rather benefactors, and so conduct themselves and their business as to merit the trust.

The first question which arises in the mind of the breeder of pure bred stock is what proportion of the increase of his herd should be sold as breeders.

I am more familiar with the methods of swine breeders and can say that among many swine breeders the custom is to aspire to place about 50 percent of their pigs in the herds of brother breeders, some 40 per cent to go to the farmer and about 10 per cent are consigned to the shambles, when, in the speaker's opinion, the reverse should be the aim of every successful swine breeder.

I am satisfied that not over 10 per cent of all the males raised are fit to go to head herds of reputation, and at least 50 per cent ought to be put beyond the possibility of reproducing their kind, leaving about 40 per cent to be sold

to the farmer. Now, while I will admit that part of the 50 per cent which I advocate consigning to the pork barrel would be better than the old time razor back, yet the question is, are they a benefit or a fair representative of the breed and herd?

No, gentlemen, the breeder of pure bred stock can not afford to send out inferior animals even though he receive remunerative prices. They stand as a representative of his herd wherever they are sent, and no doubt he will lose many a good order by reason of the inferior quality of such stock.

I have heard breeders say that they never made a cent out of the farmer trade. Such men are short sighted in not soliciting the patronage of that class of customers who ought and can be made their strongest supporters. That man's business methods need reconstructing who will ignore the relation existing between the breeder and seller of pure bred stock and the farmer. It is of mutual and reciprocal interest, and the breeder who holds himself aloof from the farmer makes a serious mistake, for there is an increasing demand for good stock, brought about largely by educating influence of the Farmers' Institute and our Live Stock Breeders' Associations, and liberal buyers may be found at home among progressive farmers if only they have faith in the breeder and his calling.

The present aim of our farmers and feeders in meat production must be quality; of course the feeder may pay too much for quality, as doubtless some cattle feeders have done for twelve months past, but the producer of pure bred stock can never give us too much quality or blue blood.

The taste for choice meat of all kinds is increasing. In breeding for pork production I believe we have practically reached the perfection point, while in mutton production a vast advance has been made in the past few years; but for some years the quality of good beef cattle has been retrograding until the broad-backed, sappy feeders as bred in Illinois are in the minority. In fact good beef cattle are proportionately scarcer in this State than they were some years ago; doubtless our farmers are largely responsible for present conditions in that inferior sires have been used and in many instances an indiscriminate mixing of breeds practiced. But I strongly suspect that the breeders of pure bred beef cattle are as responsible as any one in that there has been a brisk demand from the western ranchmen for all surplus pure bred animals, often in car load lots and at better prices than could be realized from home buyers. But from now on we are of the opinion it will be well to give more attention to developing a home market, especially for pure bred males.

The breeder of pure bred stock will usually advance the interests of his business by urging the sale of male animals rather than females—because a good prepotent sire sold to a farmer or feeder is almost sure to give a good account of himself and raise the grade of the entire flock or herd he is used in, whereas when females leave the herd of a breeder, by a little improper management or unwise crossing they may fail to give a satisfactory account of themselves and become deteriorated, and your buyer thus becomes discouraged in his effort to grade up his stock.

There is always a class of unstable farmers and stockmen who are continually changing their lines and who never stick to one pursuit long enough to master it; men who are aptly described by the story of the wayward Methodist brother who always began his experience with, "Bretheren, I've been tryin' in my weak way to serve the Lord for nigh on to twenty years—off an' on."

Now I suspect we have a good many farmers who have been serving the cause of live stock improvement for many years "off an' on," but like the wayward brother, more frequently off than on.

One great mistake made by farmers and stockmen in general is in failing to make a wise use of the time of depression in the stock breeding industry as a means of securing better stock and of preparing for the coming revival of prosperity which always follows. One trouble with the American farmers is the rush there is in us. We are like a flock of sheep; we chase the bell wether, it don't make any difference if he goes over the precipice, we fol-

low. The wiser course is not to follow the crowd, but be a buyer of the very best when everybody is selling, in order that a little later you may be the seller when the crowd again becomes buyers, and when prices get suspiciously high you can unload on the high price chasers. In time of depression it is wise to lower the quantity of the herd but raise the quality.

Referring to the special breeder, I would say, avoid selecting breeds or families because of present or prospective "boom" and artificial popularity, rather than because of a well founded belief in their excellence and adaptation to their purpose. It is clearly true that in the past speculation has figured in the sales of some of our pure bred stock and that there has been "booming" of certain breeds or families to the ultimate injury of the industry, and oftentimes the serious loss or financial ruin of those responsible for the inflation of prices and popularity; when we loose our heads we are very apt to loose our pocket-books too.

The "plungers" in improved stock breeding are a detriment to the business. Experience has proven that live stock can no more be boomed beyond its legitimate merits than can a town or city. Nothing will so quickly impair the confidence of practical farmers in the pure bred stock business as the conviction that it has become the foot ball of speculators. But as a class I believe that the breeders of pure bred stock in Illinois are as honest, honorable, energetic and patriotic a class of men as can be found in America today. Men are realizing that there is no more important factor in the successful selling of pure bred stock than the reputation they slowly build up by honest dealing, judicious advertising, and of fair representation of their stock to customers.

I believe there is no business in life where sound judgment and untarnished honor are more essential than in the breeding and sale of pure bred stock, and that man who once earns this reputation has a stepping stone to his fortune. There are plenty of men today who can raise good stock that do not possess the business ability to get their money out of them.

Some years ago most sales were made privately, but now the public sale seems to be the popular plan of selling. It certainly takes away one of the unpleasant features of the mail order business that sometimes causes dissatisfaction between buyer and seller. In conducting a public sale the breeder must be perfectly frank and fair in all his dealings and even "the appearance of evil" must be avoided, that his honesty may not be questioned; he must have his stock in such condition as to look attractive, so that neither apology nor explanation is necessary, and in all respects the details of arrangement for handling the stock and the convenience and comfort of the crowd must be carefully looked after. But the breeder who determines to hold a public sale must remember that upon that day he is centering the hopes of months, and is placing his stock in the hands of his friends and auctioneer—and the weather clerk, and be prepared to take his medicine as gracefully as possible.

If you breed and raise what the market demands you need not fear overstocking it; there are more consumers than producers. Today the market demands and is willing to pay good prices for all the good, pure bred live stock produced, if it is properly placed before the public.

The breeder should keep his place tidied up and neat in appearance and his lot and stock ready for visitors at all times; animals should be kept well assorted as to size, as they feed more evenly, and every showman and salesman understands the value of uniformity of size as well as color for making a first impression. And the first impression is of great value in selling pure bred stock, as it is said to be in making love to a girl.

We must remember that even the best of live stock will not command its value at private or even public sale without careful presentation of its merits to those who are willing and able to purchase. The question naturally arises, what is the best method of advertising? Three ways suggest themselves that will aid very much in bringing the good qualities of stock before the public. First, by advertising in live stock journals; second, by recording in a good record association; third, exhibiting in the show ring.

A man's success in disposing of his surplus stock through the live stock journals depends primarily upon the character of the papers selected, and then upon the attractiveness of the advertisement. But do not advertise a quality of stock you do not have. Good, serviceable breeding stock is not show stock. Avoid the habit of never breeding anything but Cracker Jacks, World Beaters and Jim Dandies. It has a tendency to dull the market and is discouraging to humble breeders. Honest merit and a willingness to send stock worth the money received, must be the rule. Of what benefit will it be to the man who raises breeding stock, if he raises the finest stock in the world, if he does not let the public know of it by putting out guides, in the way of advertisements, pointing to his herds and their merits, that customers may come and examine his stock or reach him by mail. It frequently occurs that two or three good buyers who have been induced to attend a public sale through an advertisement are of great value and are often the means of making the sale a success.

On the subject of pedigree there is a good deal of false theory and false practice. I believe that the day is not far distant when a recorded pedigree ought to mean that the animal possessing it is not only a pure bred, but that the animal is possessed of individual merit as well. The different registry associations should require not only a straight line of breeding back far enough to eliminate all the original blood, but also require that the animal before being admitted to registry should come up to a given scale of points. There is nothing impracticable in such a requirement.

Such rules adopted by the different registry associations would weed out the unworthy from all the associations and give enhanced value to the animals that pass to registry.

In retrospect we can see that too often serious mistakes have been made by breeders in making pedigree a substitute for individual merit. There was force in the suggestion offered a year or two ago to some swine breeders—that there was no need of having public sales in the open air; that they might as well be held in the hotel parlors, because the buyers, as a rule, studied the catalogues vastly more than they did the individual animals, and spent much money in buying name rather than quality.

However, in demanding individual excellence we must appreciate the great value of good blood.

The value of a breeding animal does not consist altogether in what you can see in the animal, but largely in what you can not see, in that long line of ancestors from which it has descended and whose hereditary characteristics and tendencies have been so fixed by a long line of breeding, that with a reasonable degree of certainty you know just what the produce of a given animal will be.

Show yard honors have value. They are worth striving for and should be appreciated. The show ring has been the means of making many breeders prominent in their vocation; has stamped success upon their reputation, and has assisted in disposing of their choice animals at good prices.

When good, honest judges are employed it is also one of the best ways to ascertain the merit of your stock.

I believe that the show ring is a dominant factor in improved live stock breeding and progressive agriculture. And that the increasing demand on some herds for pure breed stock is largely traceable to this arena, where the public may see just what the skill and ingenuity of the breeder has accomplished, where his animals can be looked upon, their superior qualities studied and their relative merits decided.

Through the State Board of Agriculture, Illinois has provided grounds with magnificent buildings and equipments, and maintains the "American Royal," today the greatest state fair in the country. It is now incumbent upon the breeders of pure bred stock in Illinois to emulate this achievement by producing and putting upon the market the finest and best stock to be found in America.

I believe that through the instrumentality of such an organization as The Illinois Live Stock Breeders' Association, representing as it does, the horse, cattle, sheep and swine interests, it is practical to broaden and extend the markets for our pure bred stock. While the production of the best stock is the first requisite to the successful stockman, the fact remains that many good breeders of pure bred stock need the stimulus and encouragement of a demand and market for their stock.

We must pay just as much attention to the development of a market for our breeding stock as we do to the production of the stock itself.

We believe it to be the province of this and kindred associations to advance the interests of progressive agriculture by developing a demand for pure bred stock in every reasonable and legitimate way.

And already, through the educational influences of the Farmers' Institutes, our Agricultural Colleges and the teachings of the agricultural press, the conviction is growing on the minds of our farmers that the growing of live stock in some of its various forms, is inseparably connected with the highest type of farming. Once convinced of this fact, those who raise live stock will want pure bred sires, although those who have bred them often fail in receiving that encouragement of which they are deserving. I do not say this in the interest of the breeders, but rather in the interest of those who keep grade stock. Woe unto the live stock interests of any community which does not use pure blooded sires.

The farmer has a right to demand of the breeder stock of quality, with vigorous constitutions and strong frames, but he must not expect to get good, pure bred sires, even for "grading up," at about meat prices; users of such stock must be willing to pay their value or the men who breed them will assuredly be driven out of the business. Stock suitable for breeding purposes can not be grown at anywhere near meat prices. The reasons are numerous and not far to seek.

It is only certain men who should take up the work of the professional breeder. All men are not fitted for it. The qualifications of the skilled and capable breeder are largely a natural gift, like music or art. It can not be taught from text books. Added to a real love of his vocation and the genius to produce good animals must be coupled intelligence in matters pertaining to his many-sided work, business tact, and the ability to do business on paper, and advertise judiciously. However, the field is wide and the laborers too few, and if any man has good, pure bred stock, but is not satisfied with the character and extent of his sales, I would say to such do not be discouraged but study carefully the methods of successful salesmen. Often a little more persistence, a little more effort, and what seems hopeless failure may turn to glorious success. Remember there is no fail, except in no longer trying; there is no defeat except from within; no really insurmountable barrier save our own inherent weakness of purpose. Every person carries within the key that unlocks either the door of success or failure. Farmers and stockmen, to each of you comes the question. What shall it be?

In conclusion, I will only say this, that while I may not have succeeded in saying anything new on the subject, I hope that by the repetition of oft-told truths I may have in some measure emphasized their importance, and said nothing that may detract from the dignity and honor of animal husbandry.

The Chairman:—Are there any questions to ask Mr. Rankin?

Mr. Zearing.—If all the farmers went to raising high-grade stock, what kind of a market would there be?

Mr. Rankin.—I think there would be a better market than today. We can not grade up our herds too much.

Mr. Zearing. Would people eat more meat? That would make a better market.

Mr. Rankin.—Yes, sir.

Mr. Brumbacker.—We have had two very able papers, but it seems to me that right here is a niche to be filled by the average common farmer. We have had the addresses of these two noted gentlemen upon full blooded stock; and as the last gentleman stated, we can not produce full blooded stock and sell them at beef prices. Now there seems to be two interests among farmers in regard to the live stock question. One is the man who is raising a high grade of cattle for breeding purposes, then comes the great body of farmers raising beef for the market, and therein lies an essential feature of farming today in Illinois. A few years ago cattle were considered profitable in Illinois for beef purposes. Then came the railroad down in Texas, and a stream of cattle came pouring up on our western plain. That was the time, and since then, when it has tried the mettle of the common Illinois farmer. And why is it so today? Perhaps it is not so much so in this section of the country as it is down where I am acquainted, but the farming lands are deteriorating for the very reason that Illinois is putting its grain into market. The western country is feeding it more, and on the average corn is worth six and seven cents less than in Illinois. Hence they can not compete with the Illinois farmer, but when it comes to feeding live stock in Iowa, Nebraska and Kansas, they have a cheaper corn to feed than the Illinois farmers, and the Illinois farmer can not compete with them. Here lies the very cause why the land of Illinois is deteriorating. We are running them to grain. The question now confronts the farmer of Illinois: What are you going to do in order to make the most money out of your quarter section and at the same time retain the fertility of it? That is the question which this generation and the next must meet. It can only be done as our friend, Mr. Rankin, has just suggested, by the farmers of Illinois raising the very best class of stock that is suitable for the meat market. He must have a quarter section in grass and raise the best cattle for beef and the best dairy cows and utilize this grass and turn it into money, even if he does not get as much money. Because of the improvement of his soil he must give some credit to his live stock.

Mr. Dean.—In relation to Mr. Rankin being a hog breeder—How can we ascertain when we buy a hog of you that he is a thoroughbred hog; what are your marks?

Mr. Rankin.—Simply whether you believe what I say or not; in other words, the honor and integrity of the breeder.

Mr. Dean.—Then you say that you are frequently wrong in the pedigree that you get?

Mr. Rankin.—No, sir. The record of the hog shows that he has been fully bred. The blood in his veins marks the produce of that sire. You may find an animal that looks just as good but he has not the ability to produce its kind as in the full bred hog. It is the line of ancestry running clear back; blood will tell in animals as well as in the human family.

Mr. Grout.—Hon. G. H. Gurley, President of Illinois Dairyman's Association, will give us a paper on "How to Make a Success of the Dairy Business"; I have the pleasure of introducing to you Hon. G. H. Gurley, of DeKalb, Illinois.

Mr. Gurley gave a paper, as follows :

Ladies and Gentlemen:—The subject assigned to me by our worthy secretary is rather a difficult one to solve. The present value of feed and the value of the products leave but a very little margin, if any. Butterine has gotten in its work this winter more than for many years, and to figure up a margin—and that means success—is beyond me.

This is the age of specialists; the man who succeeds in any occupation or profession is the one who brings to bear on his work all his faculties, both of mind and body, "eternal vigilance is the price of success" of dairying as well as any other business, and "no pains, no gains" is undoubtedly true in dairying; the day is past when a man can run his dairy at loose ends in a haphazard manner and make a success of it; close competition has reduced profits to a minimum and has compelled the dairyman to use intelligence and devote himself faithfully to the work if he would succeed.

Schools for the technical study of dairying are being established all over the country, and before long feeding and milking the cows, making the butter and cleaning the cow stable will become fine arts.

The man is the first requisite in making a successful dairy; he must be a man who is adapted to and likes the work, he must make a careful study of the business, he must devote his time and energies to the study and management of his dairy, he must not think it will run itself; he may have the best cows, a fine farm and plenty of feed, yet if he does not work his farm, and feed and care for his cows intelligently, he will meet with but indifferent success; if a man prefers to raise beef cattle rather than manage a dairy, he had better leave dairying alone, for it is decidedly wrong to spoil a good stockman to make a poor dairyman; every man that runs a farm is not a dairyman by any means; the successful dairyman must not only like it, and be adapted to it, he must also have a thorough knowledge of the entire business and must make a continuous study of the best methods of feeding and caring for his cows, handling the milk and making and marketing the butter.

The next step toward success is to secure a farm adapted to dairying; land that is fertile, and where an abundance of good, wholesome water can be secured without too much expense.

The man and farm being all right the next thing is to look to your cows. I do not advocate any particular breed of cows, as that is a matter that must be left to the dairyman to decide, as the same breed does not please all parties and does not give the same results in different hands and different localities.

In selecting your cows it is not so much a question of breeds as it is of the individual capacity of the cow to produce milk in a paying quantity and quality. Test your cows carefully, not all together, but each cow separately, and dispose of the cows that are unprofitable; do not keep them from year to year to eat up what you make on the profitable ones—dispose of them at once and fill their places with better ones.

There is no excuse for a man's buying poor cows in this day and age of the world; before buying a cow see her milked, weigh her milk and test it for butter fat, taking into consideration the time the cow has been milked since calving, the feed she is getting, the condition she is in as to flesh, and as to care, the amount of milk she gives with the per cent of butter fat in that milk, and you will have sufficient knowledge of the cow to know whether she will be a profitable cow or not; don't buy a cow because she is a good looking cow—the good looking cows are not always the best cows.

The success of the dairy business depends upon several conditions, the lack of any of which lessens or destroys it all together.

A dairyman may use the most advanced methods known—make extra fine butter and get the best price for it—and still not make a profit, for the reason he is keeping unprofitable cows he don't realize the importance of testing and weeding them out.

Two of the other essential elements of success in the dairying business are the man and the cow—the man's part is to care for the cow, and her milk,

manufacture the product from the milk and market the same; each of the above has its part to perform, and it is useless to expect success where either fail to do that part.

The cow feeding subject is a broad one—it needs intelligence and care to handle cows so as to make a success of the business; the question of feeding dairy stock in such a way that the greatest profit can be realized from the food consumed, is one of vital importance in times when the margin between the price of the product and the cost of production is as small as it is at the present time. It is only by reducing the cost of production that reasonable profits can be made.

The profit in dairying is as in any other business, that is, depends upon the margin between the market price of the product and the cost of production.

A cow is a mere machine for the conversion of food stuff into condensed product, and if you wish to get the best results from the food the cow eats you must keep her quiet, contented and above all things comfortable.

A cow standing in a barn or in a fence corner shivering with the cold, with great balls of manure hanging to her thighs, with her tail loaded down with the same, is not comfortable, and will take nearly all the food she will eat, under the above conditions, to sustain life; the owner will get but little profit from her milk.

To make a success of handling cows, they must have good care and plenty of good, palatable food; it takes a certain amount of food to keep a cow alive, in one sense this food is lost or wasted so far as realizing any profit from it is concerned, but provide her with extra food, all she will consume and she turns it into milk; it is to the advantage of the owner to give the cow all the extra food she will eat, as it is on this extra food and on this alone that the profit is made.

I have often heard dairymen say that they were feeding cornmeal and tame hay and think their cows must give rich milk. They complain about their tests being too low, they say; if cornmeal and tame hay won't make good milk there is no use in feeding cows. It seems to be hard for them to realize that the cow and not the feed controls the quality of the milk the cow gives. The quantity of the milk is influenced by the food the cow eats; give a cow plenty of food that is palatable and you can reasonably expect her to respond with a good flow of milk, but don't expect that large flow of milk to be richer in butter fat, if you do you will doubtless be disappointed.

To make a success of the dairy business it is of the greatest importance that the cow have plenty of feed.

There are usually times in August and September when pastures are dried up, feed is short, flies bother the cows so that they are unable to feed, but stand in groups in the shade of the trees, if there are such things in the pasture, and fight flies instead of feeding; the cow loses flesh under these conditions and her flow of milk shrinks. When it is once off it is hard to get it back.

I would plant corn early, about double the thickness of common field corn, for feeding at that time. Plant plenty of it so that you can feed all they will consume during the dry, hot weather. Keep up their flesh and flow of milk as nearly as possible until you have fall feed. You will be well repaid for your work and expense.

Differences in breeds and in the peculiarities of the cows and in the food and handling as well as other conditions bring it about that the best rations for one cow may not be the best for another.

Study your individual cows and fit the food to her wants as nearly as possible.

Don't make an iron rule and give every cow so much, no more or less.

The kind of food that would produce the largest flow of milk at the least cost is the kind of feed under ordinary conditions.

I once had a patron who was milking thirteen cows. He didn't deliver as much milk to the creamery as his neighbor did who had only six cows. The patron with six cows was feeding high and getting a large flow of milk, while the patron with thirteen cows let them run in the field all winter and rustle for their living. He finally bought five bags of bran and said he just stuffed those cows, and didn't get a bit more milk. He expected to get an increase in the flow of milk at once from feeding five bags of bran to thirteen poor, thin cows, but did not realize his expectations and quit feeding, disgusted with the idea that it paid to feed cows.

I also had a patron who was steaming clover straw that had been thrashed for the seed and compelled his cows to eat that or starve. They stood in manure up to their knees. He expected these cows to give a flow of milk on that kind of feed and treatment.

I mention these facts to show how unreasonable some people are. I think that is from the lack of knowledge that such things exist.

You might call this a fish story, but it is not: it is a true story. I had a nephew, several years ago, a tall, slim boy about sixteen years old, who was working on the farm with his father in the spring time; he was trying to do two men's work on account of his father's illness. Of course, at night he had his father's cow to milk. They had one cow they called the "old cow." She was rather hard to milk and gave a large flow of milk. His mother was helping all she could. They got all through except the "old cow." She carried the milk to the house and he sat down to milk the "old cow." He milked away and got a pail of milk. His mother brought him another pail. He sat down again, tired out, and milked away, and got another pail about full, and she was still giving milk. He couldn't stand it any longer. Said he "that darned cow will give milk as fast as I can milk her; I can't get that cow milked." That was the "old cow."

One very important factor in the dairy business is in getting men on the farm to milk. Some men dislike to milk for the reason that they are obliged to get up early enough to get the milking and chores done so as to get into the field as early as their neighbor who don't keep a dairy, and are expected to work as late at night, then have the cows to milk at night. The consequence is they are not very particular about milking the cows dry, and the cows dry up much quicker than they would if properly milked; the strippings are rich with butter fat, and are lost.

A good milker is necessary to make a success of the dairy business. Cows should be milked regularly at a certain hour both night and morning and by the same person. A man that is quiet and gentle with the cows, one that the cows are glad to see, one that they will follow around the yard or pasture, such a man will earn his wages in the extra amount of milk he will get. A man that is boisterous, ugly, kicking and pounding the cows with the stool, has no business in the cow stable and you can not afford to have him there at any price.

Neither can you expect to make a success of the dairy business by leaving the work and management entirely to hired help, unless you are an exceedingly good manager and financier yourself, and admitting that you are, it is a good plan for the proprietor to be overseeing his business himself.

There is one thing you don't want to lose sight of when figuring the profits of the dairy; it is the skim milk. If properly handled and judiciously fed to calves, pigs and poultry it is worth from fifteen to twenty cents per hundred. Neither should the value of manure, on a dairy farm be overlooked. I think as a rule most dairy farms have plenty of fertilizer for enriching the soil so as to produce good crops.

I don't think it conducive to the success of the dairy to have a dog or a boy on a horse, or both, to go after the cows, and run them to the yard as fast as they can go. I would much rather send the boy without the dog or horse, and if I could not control his speed any other way, I would hobble him so he could go only so fast. I would not have my cows run to and from the pasture.

Don't attempt to make a success of the dairy business without taking one or more dairy papers; the more the better if you take time to read them.

The time will be well spent. Never say you can not afford to take a dairy paper, for you certainly can not afford to be without one.

I would recommend a silo for cheap feed, if a dairyman is able to build one; if not I would cut up plenty of corn, it is good and cheap feed. If the price of milk and butter declines you must produce it cheaper if possible, lessen the cost of production, but keep up the flow of milk; the time will come when you will want it.

I would use a well bred sire of the breed I like best and breed the cows to calves about September first for a winter dairy. We generally have good weather during September, October and part of November, with cheap feed and good prices for milk and butter; the calves, if raised, will get a good start before cold weather, and if properly cared for will be strong and healthy when ready to turn on grass in the spring.

I would suggest that you raise the heifer calves from your best cows, as I think you are more certain of getting good cows from them, than to buy cows wherever you can. for as a rule a farmer does not sell his best cows.

A cow for milk, that will turn her feed into milk, not put into flesh, regardless of breed, is the cow you want.

I think warming the water that the cows drink, in cold weather, helps to make you successful in dairying, for it is much cheaper to heat water in a tank with fuel than it is to heat it with feed in a cow's stomach.

In order to make a success of dairying I consider it necessary to produce palatable and digestible food as cheap as possible, feed your cows all they will consume, keep everything connected with the dairy scrupulously clean and cows at all times as comfortable as your circumstances will permit.

My observation has been that a successful dairyman was a man who liked the farm, didn't feel at home anywhere else; he don't go to town and sit around all day, he is at home looking after his stock and farm work; such a man should be rewarded with success. * * *

Mr. Grout: Are there any questions to be asked Mr. Gurler?

Delegate: I want to know if there is any feeding that can increase the quality of the milk? Was the old cow pure bred stock?

Mr. Garter: I don't know whether she was or not. I think not, though, for there weren't many those days. That was fifteen years ago. Now I think it has been demonstrated beyond a doubt that it is hardly possible to change the quality of the milk by feeding. It can be changed, perhaps, at certain times, but not very much; but those are the general results from experimenting.

Delegate: Isn't it a fact that six farmers out of ten do not believe but that you can feed butter fat into milk? Didn't your mother teach you that feed made a better quality of milk, and that in the dairy neighborhoods six farmers out of ten do not agree with science?

Mr Gurler: I think that is right, sir. Why I had a man in our town not three days ago who has advocated that for years. He never come to our institutes or anything of the kind. He just commenced shipping his milk and he went on to state that he was losing money, feeding all of his corn to those cows, and still they were kicking about the quality of the milk. Instead of that the more he is feeding the cows the more flow he is getting and the less rich is the milk.

Delegate: I asked a man this question: Can a man feed butter fat into milk, and he said, "Yes, sir, and no, sir." Can you explain what he meant?

Mr. Gurler: No, sir.

Delegate: I wish Mr. Davenport would give us a few words on that point.

Mr. Davenport: This is Mr. Gurler's subject. In answer to that request all I have to say is this: We are very easily deceived about the whole matter. When you change the feed of a cow—a good cow, you know, is a big machine under full steam—when you change her feed you will change her activity for a few days. You sit down and keep tab day after day, and no experiment will ever show that you can feed this fat into milk. All of us have noticed a little different quality in the butter produced from clover and your grass pasture. There are eight or nine kinds of fat that go into butter, many of these oils are volatile and those are the ones we taste and smell, and those are the ones we say make the milk better, and they only flavor. We find in every case on record that it is the constitution of the animal, as bred, that declares what her proportions are going to be.

Delegate: If you will just let a cow eat from onions, you will find out how it goes.

Mr. Wells: I would like to know how many cows we must have before we can have a separator?

Mr. Gurler: I am not here to advocate hand separators; that would be hurting my business.

Mr. Wells: I am here to learn; you ought to tell.

Mr. Monrad: If he won't, I will

Mr. Gurler: Will you please tell, Mr. Monrad?

Mr. Monrad: That depends upon the cows. I should say all the way from five to ten cows. If you have five good cows a small hand separator will pay; if you have medium cows, I think ten ought to be better.

Delegate: The gentlemen I asked in regard to increasing butter fat was the proprietor of a creamery; he said that I possibly could increase the butter fat.

Mr. Gurler: He probably increased it this way: The cow gave more milk and by giving more milk she gave more fat.

The gentleman has recommended cutting up corn and feeding fodder; how does he feed fodder? Does he cut it up, and how does he feed it to be the most profitable?

Mr. Gurler: Now I think I will give myself away. I am not dairying myself at the present time, but from observation, perhaps, I have had as much experience as any one, as I have dealt with farmers all my life. I have noticed those that have made a success and those that I have not. I think those that have been successful down in our section of the country, when the fodder gets dead in the fall,

they will cut a lot of that up and run it into the barn enough to last maybe a month or two. Some will haul it and feed it in the shock from day to day, as they want it.

Delegate: I think the main point he wanted to get at was, you spoke of two or three acres of green corn.

Mr. Gurler: Was that the idea?

Delegate: No, sir; after the fodder had matured, I want to know whether it is fed with the corn in or shredded or cut up for the best results?

Mr. Gurler: Some feed it with corn on; some have machines that shred it and shell it and elevate the fodder into the barn and the corn into the wagon; some feed one way and some another.

Delegate: The question is: What is the most successful way—cut up or shredded or—how?

Mr. Gurler: Well, sir, I do not think I can answer that question. I do not think that there is much difference; some claim that when it is cut certain lengths the cow's mouth gets sore.

Mr. Carter: We have followed up the whole business in several ways, but our final figures came to show that the corn fodder hauled from the field and scattered to the ground produced the greatest profit of any way; the best way to do it is the way your grandfather did it, and we have abundance of figures to show it.

Mr. Gurler: I think dairymen put the fodder in the barn so that they have it dry and ready to use. It is cheaper to put it in than to draw it from the field as they want it.

Delegate: I would like to know if corn is cut and put in shock in the field, and then when it is dry, at the proper time, whether it can be brought in and shredded and cut and have it preserved without taking on a top mold?

Delegate: The professor recommended a silo; have you ever had any experience with a silo or sauer kraut bin?

Mr. Gurler: I can tell that man about sauer kraut; it nearly killed me once. My brother puts in over 1,500 tons of ensilage every year; that is the cheapest rough fodder that is produced; and the cows eat it up clean and there can not any bad effects come from it for he is shipping it to Chicago and getting twelve cents.

Delegate: In our county there has never been but one silo built that I know of, and they soon quit using that. In the agricultural papers a few years ago I could hardly read a page but they advocated the silo and now I can hear nothing about it, and that is why I asked about it.

Mr. Gurler: That question has been settled years ago, I guess, without any doubt.

Delegate: I would like to ask the gentleman a question: He spoke about butterine being an enemy. I don't know how far that enemy goes, but we are taught by one of the other men who gave us

a paper to produce for the consumer what he desired, and hadn't we better, if a butterine crop is more desired, hadn't we better let the calves drink the milk and go to making butterine?

Mr. Gurler: My friend, do you want two or three firms in this country to suppress the dairy interests in this country? If they leave it what it is they will not be violating the law, but they color it so that it is a fraud pure and simple. If they will leave the butterine as it is, and not color it in imitation of butter, we have not a word to say.

Delegate: Mr. Gurler, don't you color your butter?

Mr. Gurler: Yes, sir.

Delegate: Can you give any information to the average farmer who makes some butter at home right along that would lead him to make any butter to compare favorably in texture and flavor with butterine?

Mr. Gurler: No, I can not. I don't want to.

Mr. Grout: We will now have the pleasure of listening to an address from J. H. Monrad, of Winnetka, on "The Dairy Industry of Illinois."

Mr. Monrad delivered the following address before the convention:

THE DAIRYING INDUSTRY OF ILLINOIS.

Mr. President, Ladies and Gentlemen:—It seems that I am on the program through a mistake, as I resigned as secretary of the State Dairymen's Association a year ago. Nor am I prepared to do justice to such an important subject as this.

It would be too much to go into a detailed history and suffice it to mention a few facts and dates. Thus the foundation of Illinois dairy reputation was laid by Mr. Gail Borden when he started the milk condensery in Elgin in 1865. It is true Mr. C. W. Gould made cheese for his neighbors as early as 1864 at Hanover, and so did Mr. H. O. Hill at Bloomingdale, but the cheese industry, with its skimmed and filled products, has never brought us much honor, and though there are some honest full cream cheese factories, these are only catering to the local demand with a soft, quick-cure cheese which can not gain us any credit outside the State.

Of far more importance was the establishing in Elgin, 1870, of the first creamery which took care of the surplus milk from the condensery. In my estimation the secret of the reputation of the Elgin butter is the excellent care in securing good milk from the farmers inaugurated and enforced by the condenseries.

In 1872 the Elgin Board of Trade was organized. Twelve factories were represented and 3,724 pounds of butter and 993,560 pounds of cheese were sold that year at \$81,000. In Mr. Taylor's report for 1898 I find that 410 factories are represented on the board, having sold 42,579,139 pounds of butter, and 6,841,715 pounds of cheese, having sold at \$8,500,402.46. It is true some of this should be credited to the southern tiers of Wisconsin counties, but the bulk is surely enormous, especially when we consider that the city of Chicago consumes daily milk and cream from some 50,000 to 60,000 cows.

Last year I estimated the total number of creameries to be 566, and dividing the State into three parts there were 108 in the southern, 26 in the central and 432 in the northern 34 counties. The average number in each of the northern counties was 24, while your county was credited with only 10, and four of the counties had none. In all there was 34 counties without any

creamery, and yet, according to reports received, most of them are well adapted to dairying, and there are no reasons why the dairy income of Illinois should not be doubled.

The farmers think it too much work to milk cows and that it does not pay. It is true that it requires constant care and attention to make dairying pay and that it ties us to the farm day in and day out, Sunday included, but in relation to other farm work it is not harder and certainly better paid if carried on intelligently.

The trouble of all branches of farming is a lack of business system, a lack of education which enables us to substitute brain work (to a great extent) for brawn work. Let me illustrate: Years ago I made cheese on a farm in New Zealand and had to heat the milk for setting by heating a part of it over an open fire. To begin I used to guess at it, and had sometimes to dip out milk and reheat it several times and would then get it too hot and have to wait for it to cool. Later on I simply took the temperature of the milk and figured out exactly how hot my milk in the boiler should be to raise the whole batch to a desired point. Three minutes of brain work took the place of 15 to 20 minutes of manual work.

How many of the Illinois farmers know what it costs them to feed a milk cow, raise a steer, a hog or bushel of corn? And how many know what each cow is producing? Prices are low on milk, butter and cheese, but so they are on all farm products. Our only hope is to reduce the cost of production, and that can be done by introducing a more business like system and keeping an account with each cow. We must never kill the heifer calves of good cows, a practice too general among certain farmers who claim it don't pay to raise them, and yet sell their skim milk from 10 to 15 cents per 100 pounds, while it is worth double that for raising such cows.

I was pleased to hear Prof. Davenport fight this practice in his address at Galesburg last month.

Having secured the right individuals, we must feed them a balanced ration and there can be no doubt but that, generally speaking, a too carbonaceous ration is given. I shall not go into that; I am not sufficiently posted in practice, but shall only refer to the last bulletin on feeding dairy cows by Prof. Haecker of Minnesota.

I am no dairy crank who wants all farmers to become dairymen and who want to spoil good beef cattle by injudicious crossing with dairy bulls. Dairymen should keep special purpose dairy cows, and I very much doubt that they can make money by raising beef "on the side"—let them kill all milk cows.

But farmers with beef raising desires may very well make a considerable profit by going in for milk "on the side." And to do this successfully they must to a great extent practice those cardinal daily virtues, patience, regularity and cleanliness.

Objections to the creamery system have been raised on account of the poor condition in which the skim milk is returned, and in many places reform is needed, either by delivering the milk sweet enough and insisting that the skim milk being pasteurized, or by using the hand separators on the farm and hauling the cream only. In districts where farms are large and beef raising is the main object, I feel inclined to the latter system, but no rules can be laid down.

Finally a word as to dairy education. It is a burning shame that our glorious State has no better facilities for farm and dairy education. We need buildings for our agricultural college or high school, if you please, but fully as important are the agricultural grammar schools of which our Farmers' Institutes are part and parcel.

I want, however, to see this grammar education brought still nearer to the homes of the farmers; I want to see regular school house meetings established. I don't care if there are not more than fifteen or twenty farmers there and only one outside speaker.

Every school teacher should have some knowledge of the principle of agricultural dairying. They may as well instill into the minds of the children an interest and pride in farm work. There is no reason why the problem of "6 yards of calico at 5 $\frac{3}{4}$ cent?" should not be substituted by "150 pounds of milk testing 3.8 per cent of fat?" If children are shown how alum will crystallize they may also be shown how milk can be tested and incidentally learn the difference in the milk first drawn and the last, and thus learn the importance of stripping the cows clean.

If we are to increase the dairy products of Illinois in quantity and improve the quality I look to the younger generation for help. Until we have our teachers educated for this work the only way I can see is to utilize these local school house meetings, and I earnestly call upon all institute workers present here to take this matter up at every meeting, encouraging the formation of local clubs and helping them with speakers.

As I believe that discussion is worth more than long papers, I hope you will now ask questions on these or any other dairy lines.

Mr. Chairman, I feel a little like the Scotch minister, who read his sermon, and afterwards ask his friend how he liked it. The friend replied, "I did not like it; first, because you read it; second, because you read in badly; and third, because it was not worth reading."

I notice that the gentleman here has talked about appearances, and my friend has also referred, in marketing hogs, that they should be dressed up nicely. I leave it to the ladies if that is not getting off the subject, and I am going to follow suit, but before doing so I am going to say that I am highly pleased at having been at this meeting because I find that the little hobby I have been riding for these many years is getting to be taken care of and so being ridden by others.

I believe, with one of the gentlemen, that higher education has been the cause of driving a good many of our boys and girls from the farm. It is a burning shame that Illinois has not a decent building to give decent instruction in agriculture in. It is a burning shame that Illinois, with all her dairy farms, has not a dairy school worth speaking about. Minnesota, Ohio, Wisconsin and Michigan are all better provided than are we.

My hobby is the grammar school—the kindergarten of dairying, if you please, and of agriculture. I have talked a great deal with your school teachers and I find that the average school teacher considers herself above farming. Are they the proper persons to inspire our children with an interest in the occupation of professional farming? I say no.

Every teacher of a common school should be at least a high school graduate, but also a graduate of Prof. Davenport's school at Urbana. I want our girls to know something about it so they can make their work easier. If they have an interest in their work it will be lighter and easier. I speak from practical experience. I know I thought it drudgery to milk cows until I took up the question of how much could each cow pay me. I know it was drudgery to clean the milk pans and churn until I got the scientific explanation that I had to kill the germs and bacteria before the pans were proper for milk, and now I can work with great satisfaction at the butter and churning.

I am going to talk to you also on the question of leaving the farm. The cause of so many of our boys and girls leaving is due to two things: First; the drudgery. To get rid of this condition we must create an interest for the children. Instead of having the problems they now have in the primary books, why can not we have the following problems: "In 150 pounds of milk of three and eight tenths per cent fat, how much butter fat?" Give them the problems that will keep them on the farms and keep them interested in the ordinary things. Why can not the teachers have a Babcock test and show the children the difference in the quality of the milk drawn first from the cow and the milk drawn last. It would show the boys the necessity of stripping the last drops of milk from the cow and they would be pleased to see, and themselves perform the test with the machine.

I have in my paper at the last end a plea to you gentleman that you should go home and inaugurate school house meetings. I am pleased that in one county they have already done so and have succeeded in interesting the teachers. Every school teacher should know how to milk a cow, and I go further than that; I want every farmer's daughter to know how to milk a cow. Perhaps there is no need that the daughter should milk, but she should by all means have the knowledge. Which is best, having the girls working in the shops of Chicago and New York—and we must all concede that work is honorable—or to remain on the farms and milk a few cows?

I claim that many a farmer's daughter who now goes to school studying fine arts, can make more money by staying at home, taking care of and milking ten cows. Why do they leave the farm? Because their parents do not give them a fair salary. That is one reason why the boys want to go to work for strangers. If the farmers would pay them as they do the hired men,—and by the way, also give their wives a little money—there is no need of their wives asking every time she wants a little money, they would be more inclined to stay on the farm.

There is just one more point I wish to cover. I am sorry, like the speaker yesterday, that the gray hair predominates in this audience, and I want to see the young people interested, and I believe you can change it by going home and inaugurating this school house movement, not only in these little things, but to help them take better care of their milk and to help my friend Gurler secure better milk.

Mr. Grout: We have with us this afternoon a gentleman who is on the program for Thursday, but as he is compelled to leave before that time, it was thought best to let him address you at this time. The subject is "A Farmer as a Citizen," by Prof. Joseph Carter, of Champaign.

Mr. Carter addressed the audience in part, as follows:

"I ought to talk about the horse or cow or pig, but they have given me this topic; I expect because it is an easy topic to talk on.

The farm is the best place on earth to raise anything. It is as much better place to raise a man as a horse. All work is educative and the most complicated gives the most mental discipline. Only the farmer learns to do everything. A hundred years ago there were not half a dozen persons in the State who could have handled a binder, but now any sixteen-year-old boy on the farm can run one. The farmer boy has to manage pumps, engines and water pipes and becomes practically a hydraulic engineer.

A recent definition of a specialist is, "One who knows all about something and is a fool about everything else." The farmer can tell more about the weather for the coming twenty-four hours than the weather bureau. He knows how to put out a fire in the field, how to care for a man injured in machinery, before the doctor comes; how to treat a sick horse. He does not get panicky. He is resourceful and independent, and that is why he succeeds. Everywhere else, except on the farm, the work is specialized. Why even your boy wants a steam thresher just simply to show that he can run the thing. Does the stubble field get a fire?—why any farmer's boy knows what to do; he heads off the fire just as quickly as lighting. He deals at things at first cause and not with things inanimate. He develops sound and conservative judgment, and the farmer is honest.

The development of corn from the little short ears or nubbins we used to raise to fifteen-inch ears, with ninety-four per cent of corn and only six per cent of cob, is wonderful. When I was a boy the biggest ear of corn that grew would be measured with eight inches around. Two weeks ago I was down in Mason county—this is the truth—I saw some ears of corn and took a rule out of my pocket and measured them around; they were full complete ears fifteen inches long, and they had shelled out some of those ears, and I think ninety-four per cent of the ear was corn and six per cent cob. We have made the corn plant do mightier work than we thought it ever could do. Why I can beat any old farmer that was around when I was a boy, all to pieces farming. You hear them talking about milking the cows—the man that milked the old cow that would never stop giving milk—a few hundred years ago that cow could not have been made to give milk only four or five months—we have to dry up some of our cows now, you know, so as to give some of them time to get fresh.

Look what the horticulturist does with the little crab apple. They have cultivated it until now it is the great Rambo. Look at the wild cattle from which the farmer has made the short-horn. You can cut porterhouse steak from his tail to his ears. And the horses—you know they were small, and see what we have made out of them—the great massive Norman. And take the hog, now. We have heard a great deal about them, you know. The original hog's nose was four feet, two inches long and his back two feet, four inches long, and look what we have made out of him. You may laugh at him, but that is a mighty thing to do.

That is what it means to be a farmer now. You see we came into an inheritance of things that have been improved. We can not write as the man in the Scriptures, that a horse is a vain thing for safety, for he is the best thing under the sun now for safety.

The farm population is losing in its proportion to the whole population. Half of the population in Illinois are in cities and towns. City government seems a failure and is a menace to our civilization. Boodling is too common. It is a word lately invented, but we all know what it means.

Some farmers move to town because they are in debt; others to educate their children. You had better improve the home district school and educate them there. The honors in the city schools are taken by the pupils from the country, showing that the country schools are better than many think they are. Instead of having the son move to town, would it not be better to build him a house on the farm near your own? If you want church improvement, why not build a church on the corner of your farm. We are having fewer churches, and the farmer who moves to town does not feel at home in the big city churches. He gets mighty lonesome in town and finally finds out that the people only want his money. There is so much competition and jealousy in town that you have got to fight the whole crowd, and the influence

is to freeze up your soul, but it is not that way on the farm. Every man who goes to town and goes in business, loses the right to grumble. It is a great relief sometimes to tell one's woes and failures. But the merchant in town would not dare to go around telling of his losses and troubles. And then there is nothing more pitiable than to have nothing to do, as is often the case with the retired farmer in town.

I do not know who organized the Farmer's Institute, but I believe they have done much toward helping the farmers of this State, so far as I know, to be satisfied with their farms. They teach a farmer not to be ashamed of the farmers. Sometimes men are really ashamed to be farmers. I was going to ask the committee on publishing to put my name down "Farmer Carter." I heard it said of a lady who talked at an institute some years ago that she told the farmers not to be so that they could be told as farmers two blocks away. The fact is, farmers walk to go somewhere. I have never considered how I was walking. I learned it in the early days when the lands used to be awful cloddy, and I got the habit of doing it that way, and I am able to walk over them yet. I think farmers ought not to be ashamed of anything peculiar to their work. I belonged to the army for five years; do you suppose I am ashamed of the badge of the division to which I belonged in the army? Not a bit of it; neither am I of being a farmer.

No man succeeds in business who soon expects to leave it. The man who succeeds is the man who says, "Here I am to stay and here I will make my home." But there is one thing I want you to think about. We really have not as good homes as the man in town. That is a fact. We have windmills and we can very easily raise them a little higher and pipe the water into the house, and have the pipes run around the furnace and have warm water in the house all winter. Your own boys can do it, if they watch the plumber just a little while. How do I know? Well, I have done it and I have seen boys younger than I was, who learned it quicker than I did. We ought to make our homes so comfortable that we will feel good in them all the time.

I remember when I was in town in one of the big counties to the southeast, it was during the year that four men were hanged, two by law and two by ropes over a bridge—there was not one but that was young enough to have entered the school of that place. As I went in one day the minister of the place was sitting at his window looking blue, and I asked him what was the matter. He showed me a list of names, and said he, "There is a list of boys I played with when I went to school." He had crosses all up and down. Said I: "You have them pretty well crossed out." He replied: "Those are the fellows that better have died than have lived. They are not worth anything," and I asked him how he counted for it. He said, "Well, a boy nearly always goes bad if he grows up in the city. It is a fearful, fearful waste of life and energy."

I was five years in the United States army—I have been on the Mississippi river, up and down; I think I have slept in a saloon over night, and I do not think I am a restraint upon anybody's actions at all. But the worst things that ever have come into my mind came as a boy when I was only five years old, through our hired man. Do not pay twelve or fourteen dollars for some tramp that comes along, but kick him out and hire your neighbor's boy and pay him decent wages, when you know he is a good clean fellow.

If there was anything I got from the people I lived with when I was a boy it was that it was a good thing to earn a farm. Every boy ought to be trained to want to own a farm and I believe it is within the grasp of every boy to own a farm. If I were a boy ten or twelve years of age I believe I could earn a farm as easily as I got my first one. I paid for it from wages at sixteen dollars a month. I would train the boy so to make it his ambition to own land. I would instill in his mind that any fellow who does not own land is a contemptible fellow. A boy can save \$150.00 a year, I mean by that, he can get \$200.00 and live on \$25.00 or perhaps \$30.00 or \$40.00. I could clean and shine my own shoes and fix my own clothes—sometimes on Sunday—but the Lord has forgiven me for that, for it was an honest job always.

Do not let the boy have a horse and buggy and lap robe and some jewelry. A man who wants a horse and buggy can't work for me. I want the man

that works for me to want to feel that he is going to be better when he gets through working for me, and have some money. I don't want to feel that at the end of the year he is going to have only \$17 or \$18 coming to him. If he has worked all the year and his wages are coming to him I am delighted, and I can say to him, my man you will get on in the world.

The right school is not the book school, not the school that teaches in words and books. The men who control the world are not the men who deal with words but who deal with things. At our great University down there you would be surprised to see how the men in the mechanical department handle things. Men nowadays are dealing with things. I would not send a boy to a medical school unless I wanted him to be a doctor; I would not send him to anything that would change his bent for farming.

If the State has not such a school it should soon establish one, and this Farmers' Institute can do nothing of greater benefit to the State than to secure such a school. You say, but the State cannot afford it. Let us see. A farmer is a business man and farming is a science and can be taught as well any other science. We want to teach anything in the school that will be useful in the life.

Teach the girls housekeeping and the science of cooking and how to sew. There is nothing that has been with the human race so long as the needle.

Take the plow on the farm and see if it is changing. I can remember seeing the plow put up in the top of the barn that my grandfather brought with him when he came to LaSalle county. I have looked at it a good many times and when I remember it I think surely most any old thing would do for a plow. I think it must be just like the plow Putnam left on the fields when the Minute men called him. Then I have seen the little plow bright as a silver spoon and the man running up and down his vegetable garden with it. I have seen it all striped and varnished; and the plowman does not go in the furrow any more but he rides on the thing and holds the whip for Norman horses. I have seen the same plow out on the plains of Dakota. No change? Why where do you find more change? Take the old candles they used when I was a boy! Look at our twine binder and bundle carrier of today. The other day my wife and I crossed the same farm in a vestibule train that my grandfather came to with an ox team.

We follow things blindly, that is what makes our work hard as farmers.

The Chairman: Mr. Mills has a resolution to offer at this time, I believe.

Mr. Mills: Prof. Davenport has a great many letters of inquiry concerning the status of our college of agriculture. Nearly every county institute in this State has adopted resolutions urging the building, but yet it is poorly understood. I have been requested to ask Mr. Davenport to give us a statement we can give to all and stating what we need in reference to our Agricultural College. I will offer the following resolution:

WHEREAS, There is a wide spread interest in all that pertains to the State Agricultural College at Champaign, and

WHEREAS, Further information is desired concerning the aid received by said College, under the provisions of the several acts of Congress and

WHEREAS, The brief address of the Dean of said Agricultural College before this Institute has partially satisfied inquiry concerning the status and of said Institution, therefore be it

Resolved, That the Dean of the College of Agriculture be requested to prepare and submit to the Illinois Farmers' Institute for publication, a report embodying the summary of the acts of Congress relating to State Agricultural Colleges, the funds received by the State under the provisions of Morrill and

Hatch acts and further data as may be necessary to fully inform the farmers of the State concerning the revenues, work and needs of the College of Agriculture, University of Illinois.

Mr. Coolidge: How soon can that be put before the people? I understand it is to be done immediately. If it is put in the annual report it will be done after the Legislature meets.

The adoption of the above resolution was unanimously carried by a vote of the delegates.

WEDNESDAY, FEBRUARY 22, 1899.

EVENING SESSION.

Violin solo; Mr. Ralph Brokaw, Princeton.

In the absence of Mrs. Oglesby, Mrs. Grundy assumed the chair until Mrs. Oglesby's arrival.

Vocal solo; Miss Margaret Streeter.

The first address this evening will be on "The Surroundings of the Farm Home," by Hon. Arthur Bryant, of Princeton, Illinois.

Mr. Bryant stated that he had been ill and that his daughter had prepared a paper to read in his place, which paper is as follows:

THE SURROUNDINGS OF A FARM HOME.

Cassa H. Bryant.

Too many people are prone to think of home as merely a place to eat and sleep, while it should mean to them the best that earth can offer.

It should be a place to live a life of joy in, a place to make thoughtful, earnest, patriotic and virtuous men and women of the boys and girls that grow up in it.

So indelibly do our surroundings stamp themselves on us that they seem to become a very part of us, and for this reason we should make them as pure and beautiful as is in our power.

They furnish the poetry, music and art of our every day life, and to the farmers' wives and daughters, who are as a rule, a stay at home class, and to the farmers and farmers' boys, who perhaps spend more time in their homes than the average business man, to these, the home surroundings should be their inspiration to higher and nobler aims.

What a meagre, narrow life that family must lead whose house is unpainted, whose fences are down and whose stock ranges at will in the door yard.

Did you ever notice the "don't care" appearance of the whole family, and what a weary, overworked look the mother usually has?

How much more would it cost to keep those pigs in the pen, those horses and cattle in the pasture? A few dollars, a little time and exertion perhaps, but what a saving in the end.

Nature has richly blessed this grand old State of Illinois, and no such homes should find room within her borders.

The words, "a farm home," have a restful, pleasant sound, and brings to one's mind a home surrounded by fields of waving grain, with here and there the fragrant meadows and green pastures to vary the monotony.

If you are so fortunate as to be the first to build upon a farm, be sure to have some general plan as to how your buildings should be arranged, and then work to it.

Perhaps you can not realize your ideal all at once, but little by little as the years go by, work with that end in view.

Select a suitable spot for the house, well back from the road, but not so far that you feel obliged to plant a corn field in front of it. For you know women like to see what is going on in the world as well as the men do. If the buildings are already there no doubt there will be many ways in which you can improve your surroundings, and here let me suggest that your wives and daughters, if you are so fortunate to be blessed with those fair creatures, could give you the best of ideas and advice. A well planned, convenient and attractive home with a pleasant surrounding is a blessing to all who behold it. What is more refreshing on a hot summer day than a nicely kept lawn planted with a few well chosen shrubs and tress?

"Here then, shall children gather
For sport at summer noon,
When clover blooms are drooping
In the burning heat of June.
Here each returning season
Build the robin and the jay,
And the oriole and thristle
Sing the summer months away."

Do not trim these trees into the grotesque shapes we sometimes see, for man never could thus improve on nature. Around the front and side porches plant trailing vines and rose bushes, and a grape vine at the back one will give a grateful shade, where in the warm summer morning the busy mother and daughters can take their work from the hot stuffy kitchen and enjoy the fresh air, which will mean so much to them in health and strength.

Locate the out buildings with such relation to each other and to the house that the most pleasing and effective view will be presented, bearing in mind, however, the convenience and general utility of the surroundings. But never, never place them so near the house that every gentle zephyr of summer will waft such odors thither that will make you think "thoughts too deep for utterance," and under no circumstances have a feed lot between the house and barn, for there is no sight so disgusting as a pig pen close to the house. Surely there is a good deal of hoggishness in the farmer who thus arranges his place.

An orchard and a garden of small fruits and vegetables are two indispensable things on a farm, yet how many we see that lack these necessities, for they are luxuries no longer. And why is it? Do you for a moment imagine that you have not the time? An acre or two of well drained land is all that is needed, and if rightly cared for, will give more comfort, pleasure, and satisfaction than the same amount of expenditure in any other way. Have them near the house so that the busy housewife will not have to take too many extra steps to reach them, or better still, see that what fruit and vegetables she wants for the day are brought to her.

If the orchard and garden are planted in rows, a horse and cultivator could be used, thus saving much time and labor.

Along with the fruit and vegetables do not forget the flowers, which do much more than merely beautify.

The grosser elements in our natures are developed in the rough and tumble of a farmer's life, and anything that will raise us to a higher plane should be cultivated. The bright faces of the flowers have an elevating, refining and ennobling influence on all who love or care for them, and bring joy and cheer into our lives and the lives of our neighbors and friends. All love nature to a certain extent, and how much, is clearly shown by the way we have her beauties scattered around us.

Hide from view the unsightly heaps of old rails and boards and the old fences, with vines or a screen of holly hocks, cannas or shrubs.

One or two pretty arbors will give the children a grand place to play, and will form a pleasant retreat for a hot summer day.

On the north and west at a distance from the house, plant a windbreak of evergreens, which will modify the chilling blasts of winter and lessen the amount of fuel you burn.

In adorning our farms the roadside must not be forgotten, for the trees here planted will add much to the value of your farm if you wish to sell, and will make it doubly valuable to you if you remain on it and watch their development from year to year. Do not begrudge them the small amount of ground they occupy, even if they do shade and take a little food from your cornfield or potato patch.

There are other things to be thought of in this life than money, which often does not yield one-half the pleasure you imagine.

Did you ever hear of a man who lost his health in the pursuit of wealth and then then lost his wealth in the vain pursuit of health?

Greater is he who plants a beautiful flower, shrub or tree than he who gathers gold into his coffers and leaves nothing behind to beautify the earth.

O, for an inspiration to instill more pride into our farming population that they will beautify their homes and make them seem to all the family the loveliest and dearest spots on earth.

A place that the farmer boys and girls can point to with pride and say, "*That is our home.*"

The Chairman: Dr. P. H. Wensel, Moline, Illinois, will next give us a paper entitled, "The Health and Sanitary Conditions of the Farm Home."

Mr. Hollingsworth: Mr. Mills has requested me to read Dr. Wensel's paper, as he is unavoidably detained.

Mr. Hollingsworth read Dr. Wensel's paper, which was as follows:

THE HEALTH AND SANITARY CONDITION OF THE FARM HOME.

This subject is of such great importance that I greatly appreciate the honor to have been invited by your worthy Secretary, Mr. Mills, to present the same to you. It was with reluctance however that I yielded to the request, knowing the difficulty to embody, in a brief paper like this, all the important and most practical information that is or may be contributory to the subject.

Hygiene has been a subject of serious and incessant study of recent years, much to the advantage of the health of the community. The sanitary condition of the large cities has, within the last twenty-five years, really made wonderful progress. For instance, the city of New York has reduced her death rate within the last decade (1887-1897) from 26 32-100 to 19 50-100 per cent; Chicago, from 20 27-100 to 13 46-100 and Philadelphia from 21 85-100 to 18 72-100. If such are the results obtained in our largest cities where so many factors seem to work mischief to health and life, how much more should be accomplished in this respect in our country homes.

These favorable changes of sanitary condition in cities were brought about by sanitary laws, passed and enforced by the city authorities, while in the country everyone makes his own laws and enforces them to suit himself.

Where there is no compulsion there is always a tendency to allow matters to continue as they are, or as they have been in the past, and therefore the matter of sanitation, in spite of its importance, has to a great extent remained in status quo.

There is absolutely no excuse for this state of affairs, because here nature itself furnishes plenty of pure, fresh air and sunshine, which are in themselves powerful germ destroyers and the prime promoters of health and happiness.

The selection of the building site is of the utmost importance as it will influence to a very great extent the sanitary condition of the dwelling. The ground should be elevated, having a sufficient slope of at least four per cent from all sides of the house, extending if possible 100 to 150 feet, to admit of easy and rapid drainage.

The ground around the house and barns should be kept scrupulously clean from sewerage, house waste and dirt of all kinds which are particularly liable to contaminate the soil about any used dwelling, and the air from such a soil must necessarily be impure and detrimental to health.

The air in the house being warmer, (especially during the winter months) than the outside air, will act as an attractive force upon the soil under and surrounding the building and there is therefore always more or less danger of drawing up the impure soil air, if any should exist, into the building.

The barns, stalls, privies and other out-buildings should, if possible, be located east of the dwelling. Our prevailing winds in this latitude being from the west, the unpleasant, offensive and unhealthy odors that must necessarily arise from these buildings and grounds will be carried away by the wind in the opposite direction from the house, the greater part of the time.

The site should be dry, with a cellar well drained, in an open space where health giving sunlight falls on every part and the house so arranged that at least the rooms in common use, to have the sun at all times of the day, as sunlight for full health is as necessary as food and water.

A form nearest the square best secures sunlight, perfect ventilation and economical arrangement. Every projection diminishes the chance of sunlight, proper warming and ventilation.

The greatest care should be bestowed on the foundation of the house. If of stone or brick, the walls should be built in Portland cement and be plastered inside and outside with the same material, so as to make them perfectly air and water tight. The foundation should be extended not less than $2\frac{1}{2}$ feet above the ground to admit plenty of fresh air and sunshine.

The cellar floor should be constructed of concrete and cement. A cellar so built will always be dry and can very easily be kept clean.

Various materials are used for the construction of the superstructure. In this country they are mostly constructed of either wood or brick. Frame dwellings have advantages, but are warm in the summer and cold in winter, and there is more or less danger of fire. They should always be kept well under paint.

A dwelling built of good, sound, hard, well-burned brick is probably as good as any. Objections have been raised as to the dampness of brick walls. These objections were probably well-founded many years ago when such walls were constructed solid without air spaces and the plaster put directly onto the walls, but the modern way of constructing brick walls does away entirely with these objections.

There is a hollow space left between the outside and inside layers of brick and the inside of the wall is furred by putting two inch strips of wood onto the walls to which the laths for plastering are nailed, leaving a two inch hollow space between the wall and the plaster. Such a wall will be dry at all times and the house will be warm in winter and cool in summer.

The walls and ceilings should be plastered and finished with a hard plaster.

The floors should be made of well fitting, seasoned hard wood which should be varnished. If of soft pine they should be calked and oiled and painted so as to make them water-tight, and to prevent the accumulation of dust and organic matter in the crevices.

Wall paper, carpets and hangings form receptacles and traps for dust and organic matter and had therefore better be dispensed with.

It is a very good plan to have at least two of the sleeping apartments in the second story connected by double or sliding doors. This will be found very convenient in case of illness. When a patient has to spend weeks or even months in one and the same room, the same becomes monotonous and tiresome and the air becomes vitiated. It is next to impossible to thoroughly clean and ventilate such a room, especially in winter season, not to speak of the discomfort of such cleaning and airing to the patient.

If the rooms are connected the patient can spend the night in one room and the day in the other. In removing in the morning the bed with the patient into the day room, the doors are closed and the night room can then be thoroughly cleaned and ventilated.

When returned to this room in the evening to spend the night, the air, instead of being contaminated with offensive organic matter, will be pure and sweet, which will be a treat to the patient as well as to the nurse and attendants.

No one who has not tried this experiment can imagine the soothing effect this changing of rooms will have on any, and more especially on nervous patients. It will not only make ailment more bearable, but will also to a great extent, shorten the duration and bring composure and sleep.

The fresh supply of air is of vital importance to the patient for it supplies the blood with oxygen which is the prime supporter of life. At least one-fourth more of pure, fresh air is needed in the sick room than the usual amount necessary to the healthy, because the organic matter exhaled from the sick is much more offensive and harmful than that from the healthy.

As far as possible, these rooms should be remote from the noises and odors of the house. The floors should be substantial enough not to vibrate when walking on them.

The walls and ceilings of these rooms should be of uniform, neutral tints as gray or pink.

It is not the intent to set aside these rooms as a sort of private hospital. They may be used as any other room in the house, but would be available for the purpose for which they were designed, in case they were needed.

A good sized closet room should also be connected to one of these rooms, provided with shelves, drawers and hooks, for the storage of linen, medicine and other articles which may be of use, but which should not occupy every available space in the sick room, as is so often the case, and thereby adding to the annoyance of the patient and everyone else.

All of the living and bedrooms should be roomy and airy, because if a room is too small, the air therein will have to be changed often, whereby the velocity of the inlets of the air will necessarily be increased, producing draughts, making it uncomfortable for the occupants and also prevent the thorough diffusion of air in the rooms. Even warm air cannot be changed much oftener than three times an hour, and, as it will take about 3,000 cubic feet of fresh air for each adult person per hour, the cubic space for each individual should not be much less than 1,200 cubic feet. Ten foot ceilings in all of the rooms will be found a good average height.

For house heating in our latitude in the cold or winter season, we have to resort to artificial heating. A temperature in the living room of 68 or 70 degrees F. will not be found too warm to make the air in these rooms oppressive, but warm enough to be comfortable, while a temperature of 50 F., or even less, will be better for sleeping rooms. Fire places may answer their purpose well enough early in the fall and late in spring, but are entirely inadequate in the cold season, as they only render available from 6 to 12 per cent. of the fuel efficiency, the balance of the heat escaping out of the chimney, therefore some other means have to be provided for heating.

In country homes, cast iron stoves are perhaps more in use than any other system. While these stoves may answer the purpose of heating well and are economical enough as far as fuel is concerned (stoves utilize from 70 to 80 per cent. of the fuel consumed) still this system of heating is defective in a good many respects.

Stoves remove but very little air from the rooms, and if there are no other means provided for ventilation the air may become vitiated from dangerous gases and other products of combustion, especially when there is a poor draught, or when the damper in the stove-pipe is partially or entirely closed.

In very cold weather stoves are often kept red-hot. At such times carbon-monoxide and other gases will not only leak through the crevices but also through the cast-iron, and often times seriously or even dangerously contami-

nate the indoor air. It is not an infrequent occurrence that persons, or even whole families, are asphyxiated from the same while sleeping, not only in the same room in which a stove is located, but also in adjoining rooms. The treatment of such persons consists in furnishing plenty of fresh air by opening doors and windows, and in very severe cases to resort to artificial respiration.

Some use is also made of oil stoves, but the large amount of oxygen that they consume and the carbon-dioxide that is produced should be sufficient reason to discard them altogether.

Hot air furnaces are coming into use more and more in country homes. When properly constructed they furnish a large amount of converted heat and act also as a powerful ventilating agent, because the air which is drawn from the outside and forced by the heat of the furnace through pipes into the rooms above, must necessarily find an outlet, either through ventilating flues (provided for that purpose), or through cracks and crevices around doors and windows. The floors beneath the furnace should be cemented with Portland cement to prevent the drawing in of soil air.

There are also some objections to this system of heating. The inlet or cold air pipe is generally close to or on the level with the outside ground, and, whereas the air near the ground is generally contaminated with impurities from the soil, the hot air furnace draws in this impure air and distributes it to the interior of the house. This objection can easily be overcome by taking the air from well above the level of the ground, where it is comparatively free from contamination and is constantly changing.

Hot air furnaces are often too small for the amount of work that they are expected to do, especially in very cold weather, necessitating too rapid and too intense combustion of fuel. They will then be overheated, and the air is passing over red-hot iron plates, which will "burn" the air—in other words, burn from the air a good part of its oxygen, thereby depriving it of its most vital element, and rendering it unhealthy for breathing. The heat in the furnace, always varying more or less, makes the iron plates expand and contract thereby vacillating the openings of the joints and allow the combustion products (which are most injurious to health) to pass into the air chambers and thence into the rooms above. It is also very difficult to force the heated air to that part of the house against which the wind blows for that reason. The furnace should be located near the cold side of the house, that the hot air will be driven with the wind, instead of against it.

Hot water and steam heating are probably the safest, most economical, most satisfactory and healthiest method of artificial house warming.

Hot water heating in dwellings is generally performed with the so-called low pressure system. Large pipes are used according to the size of the space to be heated. At its highest point the system is open to the air, and the temperature of the air should never be above 212 F. when steam is formed.

The water, when heated, circulates through the pipes to the radiators where it parts with a portion of its heat, thus becoming colder and heavier, and passing down through the return pipe, to the boiler, where it is again heated. This system of house warming is superior as compared with the hot air system, and has the advantage, in common with steam, that it carries the heat directly to that part of the house where it is wanted, and that the air is not overheated and is free from dangerous gases.

Its disadvantages are that it requires many and large pipes, and that the radiators also have to be large. In cold weather, at least, a partial circulation of the water has to be kept up in every radiator, even in unoccupied rooms, to keep the water from freezing.

The low pressure, self-feeding, automatic regulating, single pipe system of steam heating, like that of hot water heating, is probably the safest, most economical, most satisfactory and healthiest method of artificial house warming. With either of these systems there are no poisonous gases to contaminate the air, nor is the air "burned" or overheated but simply warmed.

The heat is distributed by direct or direct-indirect radiation. We shall here speak of the direct-indirect radiation only, as being the most satisfactory and most healthful method.

After the fire in the boiler has been started, the steam is conducted from the boiler through the pipes to the radiators (which need not be nearly so large as those of hot water), where it gives off the greater part of its heat, the water of condensation then flowing back into the boiler, where it is converted into steam again. The radiators for either hot water or steam should be sufficiently large to heat the entire house comfortably in the coldest weather without crowding the boiler.

It will be found economy to cover all the hot water or steam pipes with pipe coverings made for that purpose.

Fresh air can be constantly supplied through pipes communicating with the out-door air and opening directly under the radiators. This air is warmed by passing through the radiators, from which it is diffused through the air in the rooms.

The size of these pipes should be in proportion to the radiators. It is not necessary to have a pipe under each radiator. Two in the first story of the house, placed in opposite directions, and two in the second story, placed the same way, will be found sufficient to at all times supply the house with plenty of warm, pure air.

A very even temperature can be maintained and the warm air may be diffused in any part of the house at will. The objection is often raised that steam heating, while all right enough in cold weather, makes the house too warm in mild weather.

This objection is without foundation whatever, because in the single pipe system, instead of using an entire radiator, only one, two or any number of sections of it may be used as needed, or some of the radiators in some of the rooms may be turned off altogether.

Generally the air heated by any system of artificial heating becomes too dry and therefore the addition of moisture will be essentially necessary. With hot water or steam-heating this can be readily accomplished by placing a tin or other dish, kept partially filled with water, on top of the radiators. The heat from the radiators will produce a free evaporation of the water, supplying the necessary moisture to the room.

Objections are also frequently raised by people not familiar with steam-heating, to the danger of boiler explosion, but when we consider that the entire building, in the coldest weather, may be comfortably heated with a pressure of from $\frac{1}{4}$ to 2 or 3 pounds of steam, it will be readily seen that absolutely no danger exists from that source. In fact, the ordinary kitchen range boiler has oftentimes to stand a pressure of seventy pounds or more, which is the water pressure in some cities.

The mechanical mixture of air consists of nearly 21 per cent of oxygen by volume, and 79 per cent of nitrogen, argon, carbon-dioxide, aqueous vapor, etc. Oxygen is the most important part of it and is the supporter of life and combustion. It destroys and makes harmless organic impurities and by oxygenating the blood and oxidizing the food, supplies us with heat and energy.

Through the influence of the natural purifier of the atmosphere, such as variation in the specific gravity, diffusion and dilution by the air itself, winds, oxydation, rains and the action of vegetable life, the composition of the outside air never varies much from the normal for any length of time.

But the air of inhabited apartments is often times contaminated with impurities, decidedly injurious to health, such as suspended matters, gaseous and semi-gaseous substances, especially those due to respiratory combustion, decomposition processes and the dangerous gases and products of combustion given off sometimes by stoves. It is therefore of the most importance that by proper ventilation the air in the house should be kept as pure as it is out of doors.

The most important agent in natural ventilation in closed buildings is movement, produced by variation in the specific gravity of the air. Every space

in the room is filled with air, either pure or impure. "As the air expands in the room when heated, equal volumes become lighter than they were before and therefore rise, and colder air pushes in beneath." The movements of the air in the rooms is therefore continual, but not necessarily an equable one. As it varies with the temperature of the out-door air and the heating vacillates within (no building being perfectly air-tight), some of the apertures will act as inlets and others as outlets and the quantity of air flowing into the rooms will be practically equivalent to that flowing out. It is therefore of the most importance to procure means for the outlet of the impure, vitiated air, in order to secure a proper influx of fresh air.

This can best be accomplished by supplying each chimney (of which there should be several), with a ventilating flue, or divide the chimney in the middle and use one side for the escape of smoke and the other for ventilating. The heat in the chimney or the current of air blowing over and across the top of the chimney will produce an upward draught of air which will carry off the impure air from the house.

Good water should be clear and colorless, should have a pleasant taste, be free from suspended matters and as free as possible from organic matter. Many diseases are communicable by drinking water.

For sanitary and other purposes, next to air, water is of the most importance to health, both directly and indirectly.

Water forms over 67 per cent of the weight of the human body. The solvent properties of the water give to the blood many of its uses, soluble foods being carried to the tissues, and soluble products of decomposition to the proper organs for elimination.

It is needed for drinking, cooking, washing, cleaning floors and other parts of the house, and to flush and remove waste matter and sewerage through the sewer. Filth is a prime factor in the propagation of disease. While cleanliness will greatly improve the general health, it is only through an abundant supply of water that perfect cleanliness can be maintained.

An adult requires from 50 to 60 fluid ounces for drinking purposes and adding to this the amount needed for purposes as stated above, it will make a minimum requirement of 10 gallons per head per day. The water supply of the farm home is restricted to rain and well water. The former is generally considered the healthier, but when we consider that the supply is gathered from the roofs of buildings which are most of the time covered more or less with soot from smoke, dust and many other impurities, which must necessarily mix with the water escaping from the roofs, its healthfulness thus becomes questionable and good well water for drinking will be preferred by most people. Of well water, that of the deep or artesian wells is considered the healthiest, because it is very likely to be free from organic matter.

Water taken from shallow wells should only be resorted to with great reluctance as there is always more or less danger of organic or inorganic pollution, because they are sometimes exposed to the worst forms of contamination.

Any surface impurities from barnyards, etc., may be washed in with heavy rains or snow. Cess pools or privy vaults are given an outlet into the permeable stratum from which the water supply is derived.

While to all appearances such water may look clean and sparkling, still its contamination may lead to serious outbreaks of disease, such as typhoid fever, dysentery, etc.

Under certain circumstances the water from shallow wells may be comparatively free from impurities. This is especially the case when such a well intercepts and furnishes an artificial outlet for waters which are collected from a deeper strata of an elevated surrounding country, and which would otherwise find a natural outlet in springs.

The walls of wells, for a distance of at least 6 or 7 feet from the top, should be laid in good Portland cement and plastered with the same outside and inside, to prevent the entering of surface water.

Well water is generally "hard," due to the presence of salts of lime, especially bicarbonate. While such water is pleasant to drink and may be

comparatively harmless, it makes it unfit for use for a great many domestic purposes, such as cooking, washing, etc. This can be remedied to a great extent by boiling it before using, which will drive off the excess of carbonic acid and deposit the carbonate of lime.

The surrounding district from which the well drains should be kept scrupulously clean, in order to prevent organic pollution of the water.

Whatever the source of supplies may be, it should be kept as clean from impurities as possible. Domestic filters, properly constructed and properly taken care of will remove many of the impurities of the water, but these filters become dangerous if they are not kept scrupulously clean.

The impurities (especially organic matter) retained in the filter undergo decomposition and putrefaction, furnishing a good medium for bacteria, which, in addition to the putrefaction products, will be carried through the filter by the water.

Whenever there is any doubt as to its purity, it should be boiled and areated before it is used, and if water is suspected to be impure, the same should be examined by a competent person. Such examination should be made at the premises, because it has been proved that a sample of water (in bottles), transmitted for a distance for examination (as is customary), affords time for such an increase of bacteria as to make the bacteriological examination untrustworthy.

A farm home may be supplied with nearly all of the conveniences enjoyed in our city homes, such as bath rooms, hot and cold water, etc. Bath rooms especially should not be considered as a luxury but as a necessity. A daily bath will not only add to the comforts of life but will also greatly improve the general health.

Water closets should always be in separate airy rooms, with at least one, or better, more windows, so that communication with the open air can be had. They should also be provided with a ventilating flue extending well above the roof of the house.

The house should be piped for water, and supplied with waste or sewer pipes, in order to get rid of sewerage and other waste material.

The water may be pumped from the cistern or well by a wind mill into a water tight tank in the attic of the house and from there distributed through the pipes to the different apartments of the house.

Whenever there is a supply of water there must of necessity be made some provision to carry off the water after it has been used. This is best accomplished by waste pipes provided with traps which convey the contents of water closets, bath tubs, washstands, sinks, etc, to the soil pipe, which should consist of four-inch cast iron pipes, well calced, and located above the floor in the cellar and be painted white, whereby even slight leakages will be readily detected, should they exist.

These iron soil pipes should extend ten feet beyond the outside of the cellar wall where they may connect with the glacial and vitrified sewer tile by means of a round elbow.

All sewer pipes should be provided with traps and ventilators, having a slope of not less than half an inch to the foot. If more, so much the better. They should be properly cemented and be as smooth and even as possible so as to prevent the lodging of particles of sewerage and make the flushing more effective.

The sewer pipes should empty their contents into a watertight receptacle or basin, located at least 150 feet distant from the dwelling, which is divided into two sections, connected by iron bars or screens and supplied with a ventilating shaft.

The first section will act as a sort of settling basin. Here the solids will gather, while the liquids drain through the screen into the next basin. Here the rest of the solids are collected, if any should have remained, while the liquid is drained and is carried off by a sewer tile and is used for irrigating purposes, provided the land has sufficient slope, otherwise they must be empt-

ied with the solids (which should be done frequently), and be used on the farm as fertilizers. Such deposits should be ploughed under at the time that they are dumped. The basins should be frequently disinfected with Chloride of Lime.

The throwing out of slops at the kitchen door onto the ground, as is so frequently done, should not be tolerated under any circumstances. If no provision is made for the care of slops and other waste material, the same should be deposited in covered, water-tight barrels, which should be emptied at least twice a week and kept disinfected with Chloride of Lime.

If Typhoid fever, Diphtheria, or any other zymotic or contagious diseases prevail in the neighborhood, the drinking water should be boiled, and the house, barn and other outbuildings and the premises be kept extraordinary clean, but they should also be kept disinfected by the free use of Chloride of Lime and a copperas solution—Sulphate of Iron, (Copperas), three pounds and water three gallons.

In regard to artificial illumination our farm homes are decidedly at a disadvantage, because here we must rely almost exclusively on kerosene lamps, which not only consume a great amount of oxygen, but give off at the same time their combustion products directly to the air in the room in which they burn.

This contamination must be a positive factor in the vitiation of the air, especially in poorly ventilated rooms.

The burning of kerosene lamps at night, especially in bed-rooms, should therefore not be tolerated. The electric incandescent light is the only and entirely perfect artificial light.

It does not consume any oxygen, nor does it give off any combustion products. It is, therefore, the most satisfactory light in every respect, and its general introduction in cities has done much in removing a constant source of vitiation, and thereby greatly improving the sanitary condition of the dwellings.

Fresh air, sunshine, an abundant supply of pure water, wholesome food, cleanliness, work and exercise, are the agents that prevent disease, promote health and prolong life.

To anyone interested in Hygiene and Sanitation I would recommend Dr. Eyberts' work on that subject, which has been of great assistance to me.

At this point Mrs. Oglesby, of Elkhart, Illinois, arrived and assumed the chair.

Mrs Oglesby: Mr. John I. Rinaker, of Springfield, Illinois, will instruct us on "The Architecture of the Farm Home."

Mr. Rinaker addressed the convention as follows:

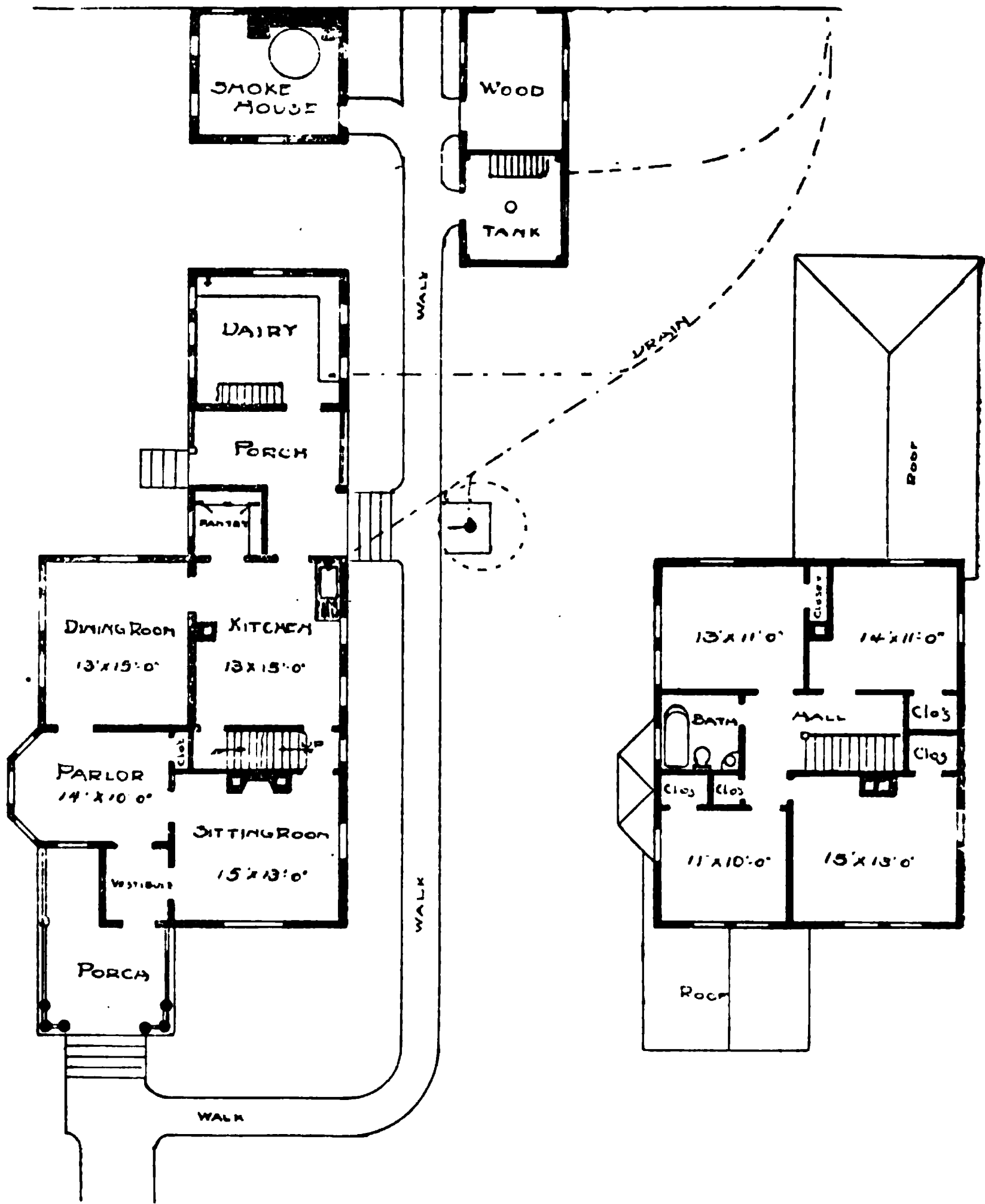
When your secretary, Col. Mills, asked me to prepare a paper for this meeting upon the subject of "Architecture on the Farm," I was at some loss to know how to begin and what to say. The subject was so broad that I saw that I could only touch upon the surface, as it were, in the limits assigned me.

In general, architecture on the farm is too often conspicuous by its absence. (I use the word "architecture" here, meaning systematic, skillful planning or designing).

In the modern practice of his profession, the architect has to do a great deal more than merely produce artistic results in the appearance of the building he designs. In fact, that is one of the least of his duties. He brings to the service of his clients his knowledge of the proper, economical, safe, convenient, healthful and labor-saving methods of construction, obtained by years of practice, observation and study of the work of men in all lands, and at all times. Landscape gardening, sanitary arrangements and appliances, in and about the house, are also within the scope of his duties. I presume that you wish to know how the architect looks at the subject of building, and how one should go about the business in the proper way, to secure the best results.



Side Elevation
No 121.



FIRST FLOOR PLAN

SECOND FLOOR PLAN

No 121. ~

SKETCHES FOR COUNTRY HOUSES.

John C. Baker Jr.

ARCHITECT.

I shall aim to suggest in a general way the method of laying out the grounds of a farmer's home, or the principles governing the proper arrangement of it; but perhaps some may wish to have the proper, practical way of proceeding made a little clearer. There is a proper way, and an improper one.

We will suppose that Mr. Brown, who has a good farm and has been doing well for several years, has decided that he is able, and will have a new and better house than the old one. While he is about it he wishes to have it right, and to have some of the conveniences that other people in town have who are no better off than himself. He may do as has been frequently done in the past; he may speak to the carpenter in the neighboring town, who at once assures him that he knows just what he wants—he has built good houses, perhaps after an architect's plans, and knows just how to build another—and better, too. It is not at all hard for him to make better plans than the architects, though he has never made a dozen in his life, and the architects have made a life-study of the best ways of building and arranging houses, and have never yet reached the point where they think they know all about plans. He may let the carpenter shove off his half drawn plans on him, give him the contract on his own drawings, and turn him loose to work according to his own sweet will—and what is the result? A bare, awkward house, not what the owner expected in appearance and comfort, and, after all the bills are paid, not what he had expected to pay for.

Perhaps, however, he prefers to go about building in a business-like way. He goes, or writes, to his architect, telling him about what he would like to spend on his house, giving him the number of rooms he wants, the location of the proposed house, and tells him to see what he can make out of the combination of conditions, requirements, surroundings and appropriations, and make the best arrangement he can therefrom.

The architect will then study over the program thus given him; in the light of his knowledge of building and the special circumstances, will make probably a half dozen sketches before he reaches a sufficiently satisfactory result. He then prepares a drawing showing the arrangement and sizes of the rooms on the different floors, indicating the position of doors, windows, stairs, chimneys, porches, walks, etc., and a view of the exterior, or elevation, as we call it. These he sends to his client for examination and suggestions as to changes, if any, are considered and made, if practicable, and returned. And so on, until the result is satisfactory to the owner and practicable in execution, the owner all the time having the benefit of the architect's knowledge and experience in the form of suggestions and criticism; the object being to make the changes on paper instead of in the building, so as to avoid extras.

When sketches were finally decided to be what is wanted, the working drawings are made to a larger scale, for the convenience and information of the carpenters and other workmen, making details more clear for undertaking to build from. Small and incomplete sketches are a fertile source of mistakes, misunderstandings and expense. Good tools are always a great help toward securing good work, and if the work is carefully planned beforehand there will be less occasion for the men to stand around and wait while the foreman figures out what to do and how to do it.

The specification are then drawn up, prescribing the kind and quality of materials and workmanship. With these the prospective builder is now ready to talk to the carpenters, and with the assurance that they all have to figure on the same things, and they will have no advantage over him from having prepared the plans themselves; and in case of disputes, he has the architect to fall back upon to insure him fair treatment from the builder, and see that the contract is carried out.

The changes in the buildings themselves, which are expensive, are generally caused by the owner and contractor not having thoroughly understood each other and the plans not having been sufficiently clear and complete. The owner, finding, as the house goes up, that it is not as he had expected, is compelled, at great expense, to make changes which do not in the end give

him what he wanted—more makeshifts being the result. By having the plans carefully worked out as I have indicated above, and fully explained, a consistent and satisfactory arrangement may be secured, and the expensive and vexatious changes caused by too great haste in letting the contract will be avoided.

Take plenty of time in getting ready—in having the plans drawn and explained—and you will make more haste toward the proper completion of the work. Some one has to design and lay out buildings of any kind, and the care and skill with which it is done will determine whether or not the results will be satisfactory. The more knowledge and skill the designer has the better the work will be, whether it will be a house, a barn—a farm yard or a town place—a threshing machine or a plow—a locomotive or a steamship.

Each farm, with its especial needs, its peculiar advantages or disadvantages, would, if properly treated to give its owner the most benefit for the least money, require the architect's attention in greater detail and at more length than is offered by the limits of this paper; just as in preparing the designs for building a home for the city man, the architect must study the special requirements of his client and the capabilities of his little plot of ground. If, with so little to work upon, the result in the city man's case has been that the American home is conceded to be superior to any other in the comforts and conveniences of life, it is evident that the less cramped opportunities offered by the average farm are capable of better results if the architect is permitted or required to give its needs the same attention.

In all the works I have seen upon this subject it seemed to be taken for granted that most anything was good enough for the farmer—that he was not expected to want as comfortable and healthful arrangements as are demanded by city people. I don't think this is correct. I believe that farmers as a class are as well able to have, and to enjoy, modern comforts and conveniences as any other, and that they will have all of them as soon as they find that they can be had at reasonable expense in country as well as in town.

The American farmer's attention has been given thus far very largely to bringing the wilderness under cultivation, and he has consequently, to some extent, neglected other things. But he is no longer content to move along in the old channels. The farmers are demanding for themselves a share in all the advantages of modern ideas, skill, invention, and means of cultivation and enjoyment. Their sons and daughters are sent to the best schools—no longer merely to prepare them to leave the farm, but to remain upon it—to cultivate it better, manage it better, and enjoy it better. In the farmer's house are to be found now the latest and best papers, magazines and books, pictures, musical instruments, etc. The fertile genius of the inventor has been invoked to give to the farmer a line of machinery equal to that used in any other line of work.

There is nothing too good for the farmer now-a-days, and he is awake to the fact and demanding improvement in all lines. He is no longer willing to put up with the old appliances for doing his work, but insists upon having the best. He has learned that the best is the cheapest—cheapest in operation, in saving of time, strength, health, mind and money. The housewife, too, must have her share in the improvements of the age. The old style of house, badly planned, inconveniently located and bare of conveniences, will no longer do. The building on the farm must receive the same attention, the same careful thought, the same effort at improvement that have been given to the outdoor work.

It is evident that if the home is in good working order the whole estate will be benefited and prosper; if not it, too, will suffer with the toiling wife and daughters. The house and its accessories should be as modern and labor saving as the mechanism in the fields, and the results will be as beneficial in improved quantity and quality of work, and in improved health of its occupants.

That the architecture of the farm is susceptible of vast improvement in most cases is, I think, almost self-evident. With every advantage of choice in location, abundance and purity of water and air—the great requisites to health—how often it is that all are lacking, and the house, instead of being arranged to lighten the burdens of the good wife and shorten her steps, adds

to them needlessly, and the strength that should be saved for useful purposes is frittered away. That this is so is not, however, because the farmer is unfair to his helpmate, (for, as a rule, they are a kind and generous class of men), and he is as ready as any one to build his wife a new house when he sees the need of it. The reason simply is that his attention has not been directed to the subject of systematic and careful arrangement of the house and its surroundings, nor how best to secure improvement. He has been limited in his study of architecture to the buildings in his own neighborhood, and so has often copied the errors of others in honest ignorance of how to obtain the best that is to be had. He has frequently been led to believe that the architect exists to minister to the desire of city people to gaze upon beautiful public buildings, but that for practical use he must consult the local carpenters, who are thus continually reproducing their unskilled designs with but little if any improvement.

The farmer's time is chiefly spent out of doors, and if he gets his meals on time it seldom occurs to him that there may be something lacking in the arrangement of the home which could be changed to secure equal or greater results with less work. He brought to his service the brains of mechanical engineers, as well as the skill of mechanics, to perfect the tools with which he works, and when he does as much for the house and its sanitary surroundings the same improvement will be found there.

In building the new house, don't let the carpenter tie you down to his narrow experience and limited ideas of design. He may know how to do the work well and yet be a very poor guide in designing your house. You go to a lawyer for legal advice, not to the sheriff or his deputies. Get away from "stock" sizes and styles—the resource of amateurs in design, and the foes of improvement. Build right while you are at it. Build as your needs dictate, and don't give up a good arrangement merely because it is not the usual way. Have the rooms you build arranged so as to be most conveniently reached, the one from the other. Widen the windows and let in the sunlight; build a bath room; put in a sink, so that the women folks will not have to rush out in the back yard to throw out the dish water. Pipe water from the windmill to the house, as well as to the stock. Run a drain to some spot where the house wastes will not poison the air. Put in a furnace, and if you wish, a gas machine or a dynamo.

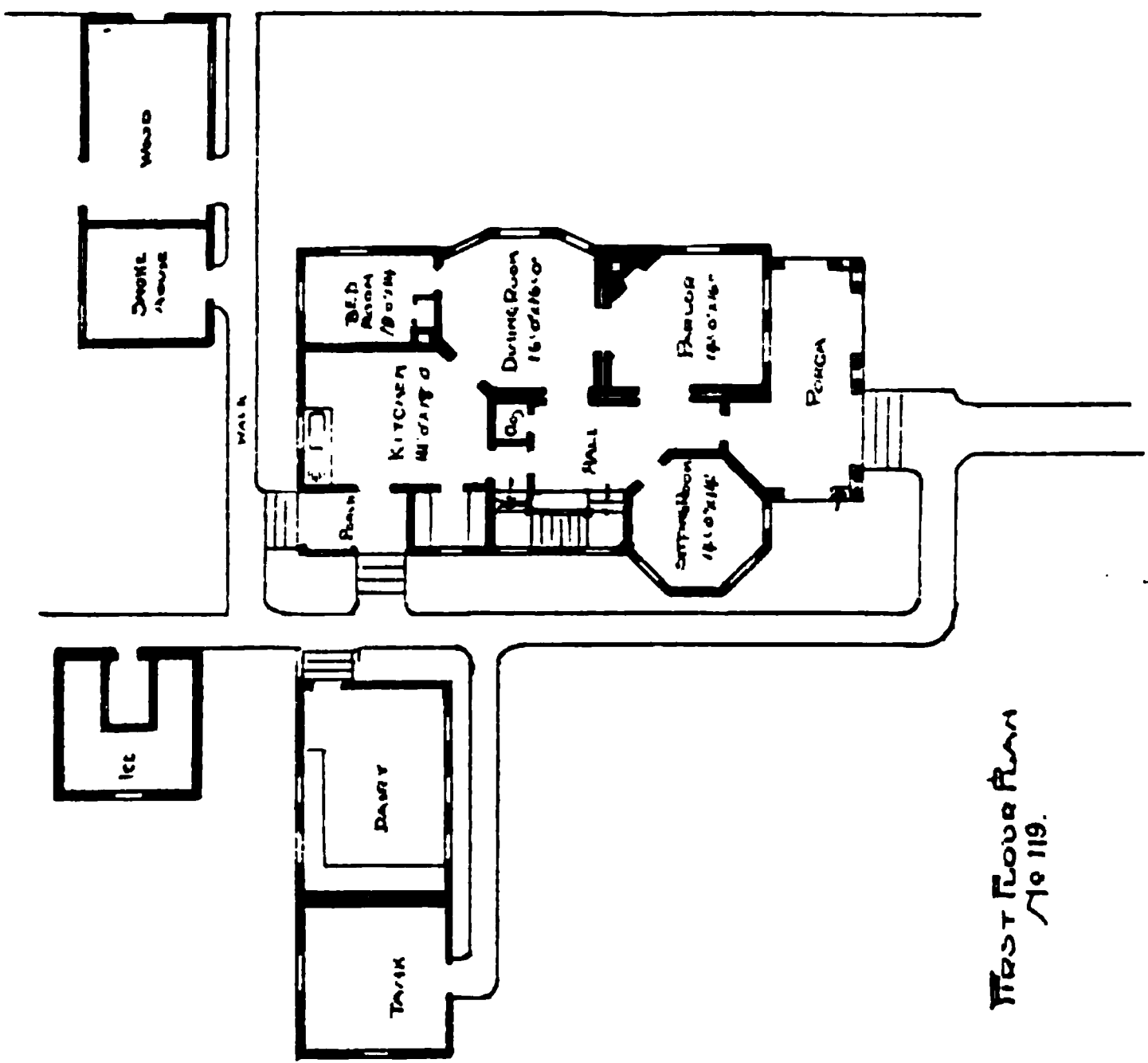
The expense of these things is not large, but you will find that the advantages are many and great; and in many cases the expense is repaid by the saving in operation, as in the case of the furnace the fuel bill is often less than when stoves are relied upon for heating the same house, and it is better and more uniformly heated. The size of the house may often be reduced without injury if the arrangement is better. In fact, in many cases the house is too large, and there is too much walking from one place to another on account of the lack of a few simple conveniences in or about it. Think of the trips to the cellar that are saved by having a pantry convenient to the kitchen, or a dumbwaiter; the advantage of drawing water in abundance by turning a faucet in the kitchen instead of pumping at the well, especially in cold or rainy weather; of pouring the waste water into the sink in a warm room instead of carrying heavy buckets of water out into the back yard. Would it not be better to do the washing in a dry, warm laundry in the cellar, pouring the water into a drain pipe that will carry it off out of sight and smell?

Suppose we see what could be done in a few instances. Say Mr. Brown wishes to have the new buildings on his farm arranged in a convenient and sanitary manner, to as good advantage as possible, and to provide a reasonable number of conveniences. In the first place, convenience generally dictates a location for the new house near to the main highway. Then usually a high, well drained spot should be chosen, the natural drainage of the ground being away from the house and well, especially avoiding a place where the slope of the ground would be from the stables toward the well and house. Equip the well with one of the modern automatically regulated windmills with elevated tank. The tank and tower may to advantage be boarded up as an additional protection to tank and pipes against freezing, and the space thus enclosed will be useful for storage, or as a workshop.

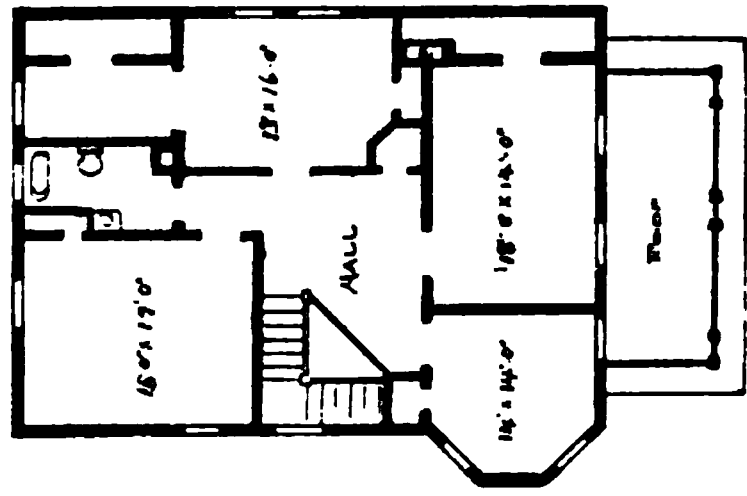


19119
FRONT ELEVATION





First Floor Plan
No. 119.



Second Floor Plan
No. 119.

SKETCHES FOR COUNTRY HOUSES

From the tank the water can, at small expense, be piped (under ground to prevent freezing) to the different stock pens, to the dairy, and to the house for sink, laundry and bath room. If carefully planned, two or three hundred feet of pipe, costing \$35.00 or \$40.00, will supply for a lifetime all the water needed, saving time and labor of help and family to be used for more profitable purposes, and contributing largely to the comfort and health of all. A supply of water under pressure will also prove very valuable in case of fire, when the farmer must depend upon himself alone.

Dairy, smoke house, wood sheds, ice house, poultry yards, orchard, garden, pig pen, etc., to be arranged on either side of a walk leading to each in the most direct manner possible, their respective distances being fixed as a general rule by their comparative offensiveness or the necessity of oversight and attention from the house—poultry houses and pig pens being farthest away and dairy and smoke house nearest to the house. Nothing in this necessitates any unusual expense, but can be obtained by a little careful study and oversight, and may, very likely, be improved in some cases.

The arrangement, of course, will be varied in some respects by the circumstances of each particular case, just as few city houses are exactly alike, each being changed somewhat to suit the individual taste or circumstances of the owner. Skill in designing comes only by practice, and one who spends his entire time in designing and laying out buildings and grounds acquires greater skill than can be possible for the amateur, and his mind becomes fertile with expedients—ways and means of securing desired results in defiance of obstacles—so that often he wrests victory from defeat, and secures most satisfactory results from the very difficulties that at first tempted him to give up in despair.

The question may be asked—what can be done to make the farm home as comfortable a home as the city house without involving unreasonable expense? The answer is the same as in the case of the city man who wishes to build. What can be done depends upon circumstances. The house, though small and cheaply built, can at least be arranged conveniently. The cellar stairs need not be reached only by crossing the dining room or parlor, or access had to one bed room only by going through another one. By a slight change in arrangement one can often secure more satisfactory results, and the expense thus saved at one place used to provide some valuable convenience at another. In very many cases the same materials, rooms, etc., could be arranged to far greater advantage than they are, and with no additional expense, if the proper skill and attention were given them, and in some cases at an actual reduction in cost.

The home is the headquarters of the farmer's business, and if it be not cheerful, comfortable and convenient, much of the incentive that results in proper management of his affairs will be lost, and his children will seek for more entertaining resorts. Between a cheerless home and a warm, bright saloon many a boy has decided already.

So, in building or improving the home in country or town, care should be taken to obtain all the conveniences in planning that are possible in each particular case. No house is so humble that study will not improve it.

It has been said that the skill of the architect is best exerted upon the small cheap houses; as the rich can afford to build without an architect, for they can afford to make mistakes, but the poor can not. They need to have their houses planned to the best advantage, so as to make no mistakes.

The question of accommodations for farm help is a difficult one to solve, but has to be considered. In most cases the farm house is turned into a boarding house. Not so bad an arrangement at ordinary times, perhaps, but not so satisfactory when extra help is needed, as at threshing time. To pro-

vide for these extra occasions, large kitchens and dining rooms are required and a liberal provision of bed room space. But as this space is for special occasions only, and generally for comparative strangers, it should be provided and arranged so as not to make unnecessary work when not being used and so as to interfere as little as possible with the usual family life when in use. The old style house with one bed room opening out of another, so that the occupants of one room had to go through the other to get in or out, is too awkward, and requires labor at other times to keep both in order when only one is being used. Herein lies the advantage of an arrangement in which access to each room is had through the hall or other public room, thus permitting rooms not in use to be shut up until needed, as well as giving greater privacy when in use.

It is becoming more common than formerly for the farm help to be accommodated in separate tenant houses, located sufficiently near to be readily called upon and yet giving the owner more privacy and not necessitating so large an establishment. Tenant houses thus located would seem to be the best manner of providing for the farm labor, being within easy reach of the proprietor, and yet giving both the satisfaction or undisturbed home life. In England this is common, and each farm house with the surrounding laborers, cottages, each with a small tract of ground, the barn, stables, sheds, etc., forms a little village by itself—picturesque portions of the landscape and satisfactory by reason of the co-operation thus rendered possible among the members of the little communities.

The farmer and the farmer's wife can each easily obtain from their own neighbors and tenants the necessary supply of extra help when needed, and not be obliged to rely upon the transitory supply of labor, and have to take strangers into their homes, with all the risk, physical, mental and moral that this implies. With the more diversified and intensified farming that will accompany our increased population, this becomes the most satisfactory and profitable way of arranging farm buildings.

I have taken up the subject in but a general way, merely indicating in outline some of the ideas that suggest themselves in a way of improving the architecture of the farm, which is but another term for systematic and practical design in planning buildings and their surroundings. You will hardly be able to get an architect to talk long without bringing out the artistic side of his profession, so, while I have no hesitation in saying that the practical is first in importance, I also wish to say that the artistic is of but little less importance.

The beautiful is a factor in life and in business that is being recognized more and more by successful, practical men. They are learning that it pays in dollars and cents to consult appearances, to build handsome houses, to improve the looks of their places.

They sell better when placed on the market, and pay to their owners yearly and daily dividends of pleasure and satisfaction to the eye and mind. The money, time and thought are well spent that are devoted to improving the farm home in comfort, convenience and beauty, and there is little danger of securing too much of either.

Mrs. Oglesby: Mrs. I. W. Richards, of Joliet, Illinois, will speak on "The Social Atmosphere of the Farm Home."

Mrs. Richards delivered an address as follows:

SOCIAL ATMOSPHERE OF THE FARM HOME.

You can not imagine the pleasure I feel in standing before the Illinois Farmers' Institute. I am happy to be here and to be one of you and to say I am a farmer's wife, as the farmers have helped to make this great State of Illinois one of the greatest in the union.

To have the social atmosphere of the farm home what it should be requires profounder thought, greater wisdom, than to govern a state.

There is a narrow tendency manifested by those engaged in professional life to underrate the importance of life on a farm. It is considered a half alive and half dead sort of existence, but what can be more dead than the hard worked clerkship in the cities, with exacting duties, with little or no time for leisure or recreation?

The hope of our country, next to religion, lies in its farms. Our homes at the present time need more care than ever, for its government and our Republic depends upon what is learned in the atmosphere of the farm home. The influence of the home is not confined to our farms alone; no, it is felt throughout the nation, in politics

Mrs. I. W. Richards, Joliet.

and society.

Then we should bring up our children with just ideas of the independence of life on a farm. Farm life means hard work, but there is always time for rest and recreation such as is afforded by no other occupation. A careless and indifferent farmer is always a failure; they are as injurious to the farm as drought or flood.

There was never a time in the world's history when high success in any profession demanded harder or more incessant labor than at the present time. Men can no longer go at one leap into eminent positions. "The world," as Emerson says, "is no longer clay, but rather iron in the hands of its workers, and men have got to hammer out a place for themselves by steady and rugged blows."

When a farmer makes a bargain, how clear is the transaction! There is no lying, no cheating, no treachery. How frank and open is the face of him who has concealed nothing! How hearty his laugh, for has he not laughed with nature?

On the farm is health and independence, all within the reach of any young man. It has been said, and justly too, that the great objection to farm life is the isolation; often, when the work is done for the day the eve seems dull and there is no friendly neighbor near enough to step in and discuss the meagre gossip of the day. If the farmer can afford to have a telephone put into the home, how much it would help to make the social atmosphere of the home brighter. It would bring them into intercourse with the outside world. The time is coming when the telephone will be found in most all farm houses. What a help it would be in bringing a physician, and a great many other ways!

Then a piano or some other musical instrument is a treasure if some of the family can play ever so simple a piece. How much they enjoy it! A hymn

or two can be sung, all the family joining in. How the tired ones become rested. Music fulfills its mission in such a family more completely than in many a lofty concert hall.

What a dreary picture it is to see the front of our farm homes closed; go from farm to farm and all to have the same funeral aspect. There is a reform needed in this matter. Mothers, wives, sisters and daughters are the ones to accomplish this. Open the shutters and let in the sunlight. Don't furnish the farm home with anything but what you can use every day. How often are the children denied the privilege of entering the parlor and unceremoniously hustled out if, by chance, they cross the threshold and must be content with a glimpse through the crack in the door.

One reason given for closing the parlors is, that it will be in a state of confusion and never fit to receive company in, if used all the time. What an insult to good housekeepers, who pride themselves on keeping everything neat and in order! All the other rooms are in constant use, are they always in confusion? Far from it. Oh, those dreary, fashionable parlors, how they make sepulchres of so many otherwise pleasant homes! Open them and make sitting rooms of them, where the family can enjoy the sweetest of life's pleasures; build family altars, then make them so delightful to infant, youth and the aged that when this world is fading from earthly vision their tender memory and associations will be the first idea of Heaven.

The first thing to do to make the farm home what it should be is to make it attractive, beautify it, add to it the comforts and enjoyments that most all women desire. Put flowers on the window sill, even if they do make dirt; open the piano and let the boys and girls play and sing when they wish, yes, or drum on it, and thus make the home so attractive for them they will not care to go elsewhere.

Have suitable pictures and good books in the home; take a few magazines and newspapers; have a handy kitchen, and above all, a good stove or range with necessary utensils, to save steps and make work easy.

Nothing adds so much to make cooking easy as a good vegetable garden, which can always be had if the men on the farm will look after it.

We can make our home attractive by having pleasant company and make their visits so entertaining they will come often. Our city cousins have not the facility for entertaining we have. Make the home full of sunshine.

Parents should see to it that their children practice courtesy and polite manners at home until they become fixed habits. You can not make children polite and courteous by mere lecturing.

Sometimes we hear mothers say when children are young they sit on their laps, and when they are old they sit on their hearts. The mothers are not alone to blame for this condition of things; fathers should set the example by treating their wives with respect, and see that the children do the same. Ask father to come in the parlor; though he be clumsy and wears rough clothes he will appreciate home comforts; tell mother, with her hands all hardened and browned with toil, that she is an ornament to the parlor—a word of praise is worth more than gold to her, and the memory of it will check many a hasty or fault-finding remark.

We have read and listened to suggestions, ways and means for bettering the condition of farmers' wives and daughters. Our farmers' wives have too little brightness in their lives, they have too little help. Most farmers' wives say cooking is the hardest—so much of it—yet most of them love to cook when they receive compliments upon their culinary skill.

If you are obliged to economize, allow your wife to prepare fewer things for dinner, then she will have a little time to catch her breath and collect her thoughts; encourage her to rest, and do not find fault because she can not do more. If we want the lives of our women and girls to be more social, their lives must, first of all, be made easier. How is this to be accomplished? There is too much work being done on our farms by mothers and daughters which ought to be done by hired help.

It is an excellent thing to have a well kept house and a beautiful table, but

the best cheer of every home must come from the heart and manner of the father and mother. If there is a coldness between them, all the wealth in Klondike can not make the home what it should be.

Take your wives to church and to other places where they would like to go. Take them with you, even if you are going on a business trip, instead of having them stay alone at home or beg for your society.

Treat your own wife, the mother of your children, as good as some other man's wife; give her a gentle caress now and then. Tell her sometimes how nice she looks, and how much you have enjoyed her dinner, if not quite so good; she will try to please you more than if you found fault with her. Don't leave all your sweet smiles for some other woman. Your wife will appreciate them too. Love your wives.

Statistics show there are more farmers' wives in the insane asylum than any other class of people. Why? So much monotony. Farmers' wives, I want to tell you a secret—get ready and go with your husbands, and nine times out of ten they will like you the better for it.

Nothing in the home needs to be more carefully watched and cultivated than the conversation. It should have the spirit of love. Home conversation needs more than love to give it its full influence.

Many people, desiring to do right in all things, allow themselves to fall into the habit of using ungentle and even unkind words to those around them, when, if their attention were called to the fact in the right way, they would be astonished at themselves; they mean no harm, but they do harm both to themselves and their families.

When fathers and mothers realize the responsibility resting on them—the effect their influence and example have upon their children—we shall see a noble race of men and women.

This subject should be one of great interest to parents, so much depends upon our boys and girls. If, by anything I might say, I could persuade one mother to watch more carefully over the minds of her children, and to teach them to make daily companions of good books, I should feel fully repaid.

Husbands, if you wish to be the true companions of your wives, don't allow yourself to degenerate into a mere drudge and money catcher; keep your intellect refreshed by reading; read to your wife while she is sewing or doing the week's mending.

On your return from town tell her what you have seen and heard that she would be the most interested in. Such things promote sociability in the home.

There is a certain condition in many farm homes (and I fear it is the same in too many other homes), that is, the money question. There are some men who do not realize, or at least seem to forget, that their wives have any right in money matters which they are bound to respect. A wife to this sort of a husband is much the same as a servant. If she wants money for family necessities, she must give an account for the expenditure of every cent; if shopping is to be done, she must go to him for the money to purchase even a spool of thread or a paper of pins.

This is humiliating to a sensitive woman, yet there are such instances. If he would stop and consider, he would not do this. Put money in your wife's purse and send her out shopping and she will make one dollar go as far as you will two; consider your wife entitled to a fair share of the income for personal and family expenses.

A man, writing to his family, said: "I am laying a good foundation and in ten years I will be rich." "Oh," said his little girl, "that is a long time to wait; why, I shall be a young lady then and not have had any good times." Make the bridge from the cradle to man or womanhood as long as you can. Let your children be children as long as they will; let them be children and not apes of men and women. Many a child goes astray, not because there is a want of prayer or virtue at home, but because there is lack of sunshine. A child needs smiles as much as flowers need sunbeams. Make the boys' home the happiest spot he can find, and he will prefer it to all other places of re-

sort. Care for carpets has driven many a boy to love the sanded floor of the grocery. An evening spent at home is worth more to any man or boy than a week spent away from the home circle. If it be the right kind of a home, it is elevating and refining and builds up a barricade against evil influences. We must do what we can to start our boys out right, and they will not abuse their opportunities. Instead of going six miles on the Sabbath to a lake or river, they will turn out of their own accord and go to church, perhaps just a little proud. Why? Because, when they go to the river they have nothing which they are pleased with for all their hard work. We must make the farm home a pleasant place for our sons, fix up their rooms just as good as our daughters, even if it be at great hazards, it will come out right; give the children some enjoyments, fix up a sort of gymnasium; buy games of recreation such as your tastes approve. A very good game for old and young in the farm home is croconole. Buy above all things good books and plenty of them. Remember some book in your childhood's home, what influence that book has had on your whole life; some one book furnishes a key to a life.

Sometimes we hear farmers' sons say, "Oh, I hain't going to stay here, I am going to town where I can have fun; it is killing to stay on the farm." Hard work doesn't kill. Young man, you must do your best and hardest work now; don't envy great men. The great man, with his weight of years and cares envies you every time he passes you by, and if you can't be a leader you can be something just as useful.

Alexander Hamilton once said to a friend: "Men give me credit for genius. All the genius I have lies just in this: When I have a subject before me I study it profoundly; day and night it is before me." Young men, go to work; put your hands to something and stop building castles in the air. If you will only believe it, the world's heroes are not chosen from the world's do-nothings.

I read a little article not long ago which impressed me very much. A certain Chicago merchant, who after years of toil, suddenly found himself bankrupt, though the long years he had been devoting to business, rising early and staying late and long away from wife and children, after all his toil and sacrifice, was sadly disappointed in anticipated wealth. A friend meeting him, asked, "What will you do now?" He laughingly said, "I guess I will go home and get acquainted with my wife and children."

This storey carries a wise lesson. In our haste and devotion to business we care too little for the social atmosphere of the home. For six days the lash of business drives men on and the family are only seen for a short time each day. At last the father awakes to the fact that his children have been quietly leaving him.

Our children are with us for a night and on the morrow are gone; the babe who laughed and played in your home is now a man in a distant city.

Young man, you can do much towards making your home bright and social. You ought to feel that your honor is involved in what your home is and in the character and dignity of your sisters. There is no insult which you should sooner rebuke than one offered to them. If you would have others esteem and honor them, you must esteem and honor them yourself. Treat them with far less reserve, but with no less delicacy than you would the most genteel stranger. It should be impressed upon the minds of our girls that they are to stand side by side with their brothers in any business transaction. This will develop their dignity and independence; it will make them less careless and selfish and give them a larger and more earnest meaning of life.

If we want our women and girls on the farm to be changed, their lives must be made easier and brighter. There are innumerable things written how to help the farmers' wives. Some city writers say, "Give them the old spinning wheel back to keep them busy and they won't want any recreation."

But when we realize that work is not all in this world, and when we live to get all the enjoyment out of life we can, there will be less drive and more leisure to get acquainted with our families; we will let the sunshine into our lives, too many of which are like closed rooms.

Life was made to live in and not merely to exist in, and anyone who looks upon work as the all important aim of life does nothing but exist.

There is a decided improvement to be noticed around the farm homes at the present time. The lawns have more or less flowering shrubs and blooming plants. It is by attending to little matters like these that contentment comes to the wife and children. There is something to take their attention from their daily work, something to give them pleasure.

How beautiful the boulevards of our cities look! The roads in front or along our farms can be made to look just as pretty and at the cost of only a little trouble. It is little things like these that add to the farm home and help to make it brighter.

If the women of our farms would form among themselves circles or clubs for the study of natural history or some other good book, they might choose and form ways and means for doing housework the best and easiest, and once a month serve a simple tea and ask your husbands to join you. There are literary societies which can be made very interesting and entertaining for both old and young, each farm house taking turns in entertaining.

Then a dinner club, where each member gives one dinner to the club during the season at his home, has been found to be a success. The Farmers' Alliance and Grange have done much to promote sociability and intellectuality.

The social atmosphere of the farm home has been growing brighter in our part of the country since the organization of the Farmers' Institute. It has been a great educator and also promoter of sociability. When our Institute organized, at the first session very few were present. I believe there were but three women. We met in a little room in the court house, and at the present time there is not an auditorium large enough in Joliet to accommodate the great audience. Farmers and their wives, sons and daughters have assisted our noble president, A. Allen Francis, in this good work. Some of our farmers have surprised us by their papers. They have brought out fine ideas of golden thought. I think it must be that ideas are formed in the country that would never come to city friends.

I want to say to the young people, never refuse to write a paper offered you by the institute, for you don't know how much you can do until you try, and it will come to you, little by little; work and think as you never did before. There is nothing worth the having without labor. It will help to make these meetings dearer to you and draw you out as nothing else ever could.

Mrs. Oglesby: Mrs. Dunlap has something to say to us of the women's meeting this afternoon.

Mrs. Dunlap reported as follows:

LADIES AND GENTLEMEN:—I certainly feel that I have had two surprises this evening; one, that I am considered an extemporaneous speaker, and another in the curiosity of the men of this Institute.

As many are aware, this afternoon we held a woman's meeting from which the men deemed themselves excluded for some reason or other, but two of them showed their courage and took down the bars and entered. But the rest of them, their curiosity is getting a little ahead of them, and now at the first meeting that follows they ask us to come and report that meeting.

I certainly am proud that I can come here as a farmer's wife and report to you the results of that meeting this afternoon, and I wish it were possible that I might bring to you in the greatness in which it abounded there today the enthusiasm and also the inspiration received by many of us. Today we have organized the Illinois Domestic Science Association permanently. We have elected our president and secretary and vice president, and have adopted our constitution, and I hope that the constitution, perhaps with amendments, may last for years, and that the result of that constitution may be felt in every corner of the State of Illinois. The farmers of Illinois have given the women an opportunity that they have long wished for by making it

possible for us to organize in this way and coöperate with you in your institute work. And I hope that it is possible that next year we will have every county that is organized for the farmers also organized for the women.

We had in our report today the report of twenty-six counties already organized in this line, and we also had twenty delegates there from all parts of the State, which we think is wonderful for the first meeting. I wish that I could bring to you some of the thoughts expressed today and the enthusiasm when they discussed one of the objects of the Domestic Science Association—to teach this science in the schools and colleges of our State—and it was thoroughly and well discussed. And I wish to say that we had with us two of the prominent workers of the land, Mrs. Kedzie and Mrs. Rorer, who gave us of their wisdom and advice much that was helpful, and we feel that we were more than blest in the number of women of ability that were present this afternoon to encourage us in our first meeting. There were resolutions offered, one recommending this work at our State University in establishing a domestic science department and the placing of a hall among its buildings. There was also a resolution offered thanking the good women of this wonderful and beautiful city of Princeton for their reception to us and their kindness in receiving us into their homes and their hearts, and making us feel that we were actually of them. We also had a resolution offered thanking the officers of this Farmers' Institute for the work they have done for this organization in abetting and helping us to form it, for without them it would never have been accomplished. And we also had a resolution offered wishing to sanction that bill that is to be presented asking for a library donation for a traveling library throughout the State, and if I had the time I would like to speak of the advantages to be gained from a traveling library.

I do not know as there was anything else of very great importance. Only the paper that was read on organization I hope you will all be able to read, because there is much of it that will help us throughout organizations in the State. But I again appeal to you as farmers, and farmers' wives, and as people of this great and wonderful State of Illinois, that you aid us in this work of making better homes. And think not that the money is wasted that you give toward placing it among the studies of your schools, and think not that you can not afford it; you can not afford to do without it, and I pray that the day is not far distant when not only our towns and cities may possess these advantages, and the girls and the boys, if they want it, may have it in the country districts. That problem is going to be solved, and it will be solved by the women helping, and I trust you will all send forth your best efforts to the women of this State who are laboring to bring the homes and the labor of the homes to a higher, purer and better plane of existence.

CONVENTION OF DELEGATES ILLINOIS FARMERS INSTITUTES.

The convention of delegates called for the purpose of selecting directors of the Illinois Farmers' Institutes for Congressional Districts of even numbers met in Apollo Hall, Princeton, February 23, 1899, at 8:30 o'clock a. m., pursuant to the following:

NOTICE OF MEETING.

The delegates from the several Congressional Districts will meet for conference at 8:30 o'clock a. m. Thursday, February 23, 1899, to select directors for the Illinois Farmers' Institutes for the Congressional Districts of even numbers as provided in the act of the General Assembly creating the same, and after the reports by congressional delegations of the election of directors to serve for the ensuing two years as members of the Illinois Farmers' Institute.

The meeting was called to order by Hon. A. F. Moore, President of the Illinois Farmers' Institute.

Mr. Charles F. Mills, of Springfield, was made secretary.

The president stated that the law provided for the election at this meeting of one director from each Congressional District of the State of even numbers, said director to be selected by the delegates from the districts present at the annual meeting of the Illinois Farmers' Institute.

The convention on motion took a recess of fifteen minutes to enable the delegates present to be assembled by Congressional Districts for the purpose of selecting directors for the even numbered districts to serve for the ensuing two years.

After recess the delegates again assembled and were called to order by President Moore.

Reports of the congressional delegations were then called for from the districts of even numbers as to the election of directors for the ensuing two years, as provided in the act creating the Illinois Farmers' Institute.

Reports of delegates from the respective districts and the directors elected from the even numbered districts were then presented, read to the convention composed of all delegates assembled, and ordered spread upon the records, viz.:

SECOND CONGRESSIONAL DISTRICT.

Director elected 1899-1900, W. R. Goodwin, Chicago. Officers district delegation, Johnathan Periam, chairman; Miller Purvis, secretary. Delegates appointed to represent County Institutes in the Second Congressional District in said election:

County.	Delegates.	Post Office.
Cook.....	Johnathan Periam.....	Chicago.....
"	H. F. Thurston.....	"
"	Miller Purvis.....	"

FOURTH CONGRESSIONAL DISTRICT.

Director elected 1899-1900, George H. Cleveland, Chicago. Officers district delegation, Jonathan Periam, chairman; Miller Purvis, secretary. Delegates appointed to represent County Institutes in the Fourth Congressional District in said election:

County.	Delegates.	Post Office.
Cook.....	Johnathan Periam.....	Chicago.....
"	H. F. Thurston.....	"
"	Miller Purvis.....	"

SIXTH CONGRESSIONAL DISTRICT.

Director elected 1899-1900, William Stewart, Chicago. Officers district delegation, Johnathan Periam, chairman, Miller Purvis, secretary. Delegates appointed to represent County Institutes in the Sixth Congressional District in said election:

County.	Delegates.	Post Office.
Cook.....	Johnathan Periam.....	Chicago.....
"	H. F. Thurston.....	"
"	Miller Purvis.....	"

EIGHTH CONGRESSIONAL DISTRICT.

Director elected 1899-1900, C. D. Bartlett, Bartlett. Officers district delegation, J. B. Wheeler, chairman; E. J. W. Deitz, secretary. Delegates appointed to represent County Institutes in the Eighth Congressional District in said election:

County.	Delegates.	Post Office.
DeKalb.....	Byron Wyman.....	Sycamore.....
"	H. B. Gurler.....	DeKalb.....
"	Hiram Holcomb.....	Sycamore.....
DuPage.....	E. J. W. Deitz.....	Downers Grove.....
Grundy.....	Willis A. Clark.....	Carbon Hill
"	Robt. H. Dewey.....	Mazon.....
"	Mrs. Clara Harford.....	Verona.....
Kane	F. B. F. Wheeler.....	St. Charles.....
"	L. B. Wright.....	Elgin.....
"	E. B. Spencer.....	Kaneville.....
Kendall.....	R. A. McClelland.....	Yorkville.....
McHenry.....	Alonzo Stansel.....	"
"	Edmund Seely.....	"

TENTH CONGRESSIONAL DISTRICT.

Director elected 1899-1800, J. H. Coolidge, Galesburg. Officers district delegation, B. F. Fountaine, chairman; F. S. Melvin, secretary. Delegates appointed to represent County Institutes in the Tenth Congressional District in said election:

County.	Delegates.	Post Office.
Henry.....	Charles Malcolm.....	Cambridge.....
"	Frank S. Melvin.....	Genesis.....
"	John N. Morgan.....	Galva.....
Knox.....	G. W. Gale.....	Galesburg.....
"	Hugh Greig.....	Oneida.....
"	H. M. Sisson.....	Galesburg.....
Mercer.....	John Montgomery.....	Aledo.....
"	George Walker.....	Viola.....
"	A. L. Woodham.....	New Windsor.....
Rock Island.....	L. O. Johns.....	South Moline.....
"	B. F. Fountaine.....	Andalusia.....
"	George McCaskin.....	Rock Island.....
Stark.....	Geo. N. Buffum.....	LaFayette.....
"	John A. Colian.....	Wyoming.....
"	John Dewey.....	Toulon.....
Whiteside.....	John Fluck.....	Sterling.....
"	Leeman Ramsey.....	Rock Falls.....
"	Edward Devene.....	Deer Grove.....

TWELFTH CONGRESSIONAL DISTRICT.

Director elected 1899-1900, Frank I. Mann, Gilman. Officers district delegation, David Brumback, chairman; C. E. Foster, secretary. Delegates appointed to represent County Institutes in the Twelfth Congressional District in said election:

County.	Delegates.	Post Office.
Iroquois	D. Brumback.....	Danforth
"	Chas. E. Foster.....	Watseka.....
"	Frank I. Mann.....	Gilman.....
Kankakee.....	O. S. Day.....	Waldron.....
"	T. P. Doles.....	Manteno.....
"	Leon Hay.....	Kankakee.....
Vermillion.....	W. M. Benes.....	Ridge Farm.....
"	R. C. Smith	Danville.....
"	Thomas Taylor.....	Cablin

FOURTEENTH CONGRESSIONAL DISTRICT.

Director elected 1899-1900, Oliver Wilson, Magnolia. Officers district delegation, A. L. Turner, chairman; Charles E. Hummel, secretary. Delegates appointed to represent County Institutes in the Fourteenth Congressional District in said election:

County.	Delegates.	Post Office.
Fulton	H. B. Rice.....	Lewiston
"	C. C. McCutcheon.....	Norris.....
"	L. F. Ross.....	Lewiston
Mason.....	Charles E. Hummel.....	Bishop.....
"	John H. Messman	"
"	Lena McHarvy.....	Mason City.....
Marshall.....	C. J. Held.....	Lacon.....
"	Alfred Judd.....	Winona.....
"	A. L. Turner.....	"
Peoria.....	"	"
Putnam.....	George Gregory	"
"	J. E. Barnard.....	"
"	J. M. Winship	"
Tazewell.....	"	"

SIXTEENTH CONGRESSIONAL DISTRICT.

Director elected 1899-1900, A. P. Grout, Winchester. Officers district delegation, H. J. Westlake, chairman; Thomas F. Ferris, secretary. Delegates appointed to represent County Institutes in the Sixteenth Congressional District in said election:

County.	Delegates.	Post Office.
Calhoun	J. Fowler.....	Golden Eagle.....
"	S. J. Merida	Mozier.....
"	C. L. Wood.....	Hamburg.....
Cass.....	"	"
Greene.....	"	"
Jersey	J. S. Chapman.....	Jerseyville.....
"	Thomas F. Ferns.....	"
"	W. H. Fulkerson.....	"
Macoupin.....	"	"
Morgan.....	"	"
Pike.....	H. J. Westlake.....	Pittsfield
"	W. R. Wells	"
"	C. G. Winn.....	Griggsville.....
Scott.....	J. C. Andress.....	Manchester.....
"	A. P. Grout.....	Winchester
"	George Hawk.....	Merritt.....

EIGHTEENTH CONGRESSIONAL DISTRICT.

Director elected 1899-1900, E. W. Burroughs, Edwardsville. Officers district delegation, F. F. Thacker, chairman; Lee S. Dorsey, secretary. Delegates appointed to represent County Institutes in the Eighteenth Congressional District in said election:

County.	Delegates.	Post Office.
Bond.....	F. F. Thacker.....	Sorento.....
.. ..	George Hines.....	.....
.....	W. C. Lochman.....	Reno.....
Fayette.....	.....	.....
Madison.....	E. W. Burroughs.....	Edwardsville.....
.. ..	Lee S. Dorsey.....	Moro.....
.....	Frank Troeckler.....	Mitchell.....
Montgomery.....	Edward Grimes.....	Raymond.....
.. ..	E. C. Rickards.....	Hillsboro.....
.....	E. C. Simison.....	White Oak.....
Moultrie.....	.....	.....
Shelby.....	James F. Kull.....	Strasbury.....
.. ..	A. H. McTaggart.....	Pana.....
.....	C. M. Sargent.....	Windsor.....

TWENTIETH CONGRESSIONAL DISTRICT.

Director elected 1899-1900, L. N. Beal, Mt. Vernon. Officers district delegation, Wm. Hutchinson, chairman; Paul Chipman, secretary. Delegates appointed to represent County Institutes in the Twentieth Congressional District in said election:

County.	Delegate.	Post Office.
Clay.....	.....	.....
Edwards.....	Albert Fewkes.....	Albion.....
.....	M. E. Shurtliff.....	Bone Gap.....
Franklin.....	Wm. Hutchinson.....	Benton.....
.. ..	J. W. Vancil.....	.....
.....	Carroll Moore.....	Benton.....
Gallatin.....	.....	.....
Hamilton.....	.....	.....
Hardin.....	.....	.....
Jefferson.....	John F. Beal.....	Mt. Vernon.....
.. ..	John R. Piercy.....	.....
.....	Mrs. L. N. Beal.....	.....
Wabash.....	.....	.....
Wayne.....	N. C. Davis.....	Fairfield.....
.. ..	J. G. Wright.....	.....
.....	E. A. Rankin.....	.....
White.....	.....	.....

TWENTY-SECOND CONGRESSIONAL DISTRICT.

Directors elected 1899-1900, _____ . Officers district delegation, _____ , chairman; _____ , secretary. Delegates appointed to represent County Institutes in the Twenty-second Congressional District in said election:

County.	Delegate.	Post Office.
Alexander.....
Jackson.....
Johnson.....
Massac.....
Pope.....
Pulaski.....
Saline.....
Union.....
Williamson.....

The following list of Directors reported by the respective district delegations as having been duly elected pursuant to law Directors of the Illinois Farmers' Institute for 1899-1900 by the delegates in attendance at the meeting held in Princeton, February 23, 1899, was read and ordered by the Convention to be spread upon the records, viz:

District.	Name of Director.	Post Office.
2d District.....	W. R. Goodwin.....	Chicago.....
4th	George H. Cleveland.....	.. ..
6th	William Stewart.....	.. ..
8th	C. D. Bartlett.....	Bartlett.....
10th	J. H. Coolidge	Galesburg.....
12th	F. I. Mann.....	Gilman
14th	Oliver Wilson.....	Magnolia
16th	A. P. Grout.....	Winchester
18th	E. W. Burroughs.....	Edwardsville.....
20th	L. N. Beal.....	Mt. Vernon.....
22d .....	.....	.....

On motion the Convention adjourned *sine die*.

AMOS F. MOORE,
Chairman.

CHARLES F. MILLS,
Secretary.

THURSDAY, FEBRUARY 28, 1899.

MORNING SESSION.

The convention was opened by prayer by Rev. Ernest Evans, of the Methodist Protestant Church, of Princeton, Illinois:

Our Father, we come to Thee this morning to invoke Thy divine blessing upon this last day's session. .

We pray, our Father, that we may come before Thee these few moments thoughtfully and earnestly. We recognize Thee as the Giver of every true and perfect gift. We recognize the fact that all things come through thy hands, and our Father Thou hast given to us the richest of gifts spiritual and gifts that pertain to our material welfare, the gifts that come from field and forest.

We pray our Father this morning that we may lift up our hearts to Thee in praise and thanksgiving for Thy riches Thou hast given to us, for the fields and forests and Thy words. We pray that we may remember the fact that all these good and perfect gifts come from Thee.

This morning Father, let Thy blessing rest upon this people, who represent the great farming industries of our State.

And we pray that Thou will help them as they toil or superintend the toil that goes on in the field and orchard that they may remember that Thou art the one who gives us the rain. Thou hast said that as long as the world shall stand sunshine and harvest, and seed time shall not fail. Thou hast verified them to us year by year. We have faith in Thy written word and in Thy blessings yet to come. We receive Thy gifts by working with Thee. Man's communion with God is the only means of having all these gifts.

We pray Thy blessing this morning upon this people who have come to consider plans and study methods so as to be able to do larger things in the fields they have chosen for their own. Let Thy blessing rest upon them in their study and let them have large and beneficial results. We pray not only for Thy blessing in this respect, but bless us as we assemble here together that we may be sweetened with the ties of friendship, that there may be a tightening of the bonds of friendship, and grant that there may be spiritual results through these.

Help them all to understand as they toil for the fruits of the field and for the things nature gives that there are things nobler and grander than these.

Bless the great industry they represent all over our State and grant Father that Thy blessing and power may be with these men who work earnestly and study earnestly and pray earnestly to Thee for Thy blessing.

Grant that they may leave, when they adjourn, with pleasant thoughts and recollections, and make them strong to toil in the lines they have chosen.

We ask all these things in the name of Jesus Christ, our Savior.

Vocal solo—Mrs. Bailey, Princeton.

Vocal solo—Miss Clara Allen, Princeton.

Hon. Amos F. Moore, presiding.

I believe we are to hear from the Committee on Resolutions this morning.

Mr. Gale, chairman of Committee on Resolutions:

Your committee on resolutions, has decided to recommend the passage of the following resolutions:

WHEREAS, The trustees of the University of Illinois have asked the General Assembly for an appropriation of \$150,000 to be expended in the construction of a building for the State Agricultural College, and

WHEREAS, A committee of farmers appointed by the Illinois Farmers' Institute have carefully examined into the wants of the State Agricultural College and find that said sum is imperatively needed to economically construct and equip said building, and

WHEREAS, With great unanimity the County Institutes of Illinois have urged the great importance of appropriating one hundred and fifty thousand dollars for said purpose; therefore, be it

Resolved, That the farmers of the State assembled in annual session of the Illinois Farmers' Institute request that not less than \$150,000 be appropriated by the General Assembly of the State for the much needed building for the State Agricultural College at Champaign, and the equipments therefor.

Which resolution was adopted unanimously.

WHEREAS, Anything that will contribute to the advancement of agricultural education must result in increased benefit to all the people; therefore, be it

Resolved, That an easy text book containing the principles of agriculture should be taught in the public schools of this State and that we respectfully request the General Assembly to so amend the school law as to make the teaching of the elements of agriculture in the public schools obligatory.

Adopted unanimously.

Resolved, That we recognize the fundamental importance of Domestic Economy, and note with satisfaction the effective work that is being done by the Illinois Association of Domestic Science organized at the last annual meeting of the State Institute; and, be it further

Resolved, That we recognize the work of this association and of the County Domestic Science Associations that are being organized through its efforts as auxilliary to and a part of the Farmers' Institute work of Illinois.

Carried unanimously.

WHEREAS, There is an undue amount of food adulteration within our State, and, whereas the sale of inferior foods, or substitutes for food, is a menace to public health and an injustice to the farming interests of Illinois; therefore, be it

Resolved, That the Illinois Farmers' Institute here assembled favor and endorse the Dunlap Pure Food Bill.

Carried unanimously.

WHEREAS, Through the findings of science the principle of Domestic Economy have become teachable, and

WHEREAS, 'It is the privilege and the duty of womankind to keep the home, therefore be it

Resolved, That they have the right to be instructed in Domestic Science and that it ought to be taught both in the University and in the Public Schools.

Carried unanimously.

Resolved, That the thanks of this "State Farmers' Institute" are especially due, and are hereby unanimously tendered to citizens of Princeton for their cordial hospitality which has been extended to us upon every opportunity during our sojourn in their midst.

Resolved, That we are under additional obligations to the local committees for their kindly attentions and also to Princeton for the use of this fine audience room "Apollo Hall." To the young ladies and the gentlemen who have furnished us with an excellent program of instrumental and vocal music our thanks are most gratefully extended. Our thanks are also due to the members of the Press who have kindly printed copious notes of our proceedings.

Carried unanimously by a rising vote.

WHEREAS, We believe that the growing and feeding of live stock in some of its various forms is inseparably connected with the highest type of farming and that animal husbandry merits and needs all the stimulus and encouragement that can be given to it in Illinois, be it

Resolved, That we recommend that topics relating to animal husbandry and live stock improvements be more generally introduced and discussed at the different County Institutes the coming season and that we commend and heartily indorse the efforts of the Illinois Live Stock Breeders' Association in co-operating with the Farmers' Institute in advancing the interest of improved live stock in all honorable and legitimate ways.

Unanimously carried.

President Moore: We will now continue the regular program:

I have the great pleasure of introducing to you this morning Mrs. Oglesby who will give us a paper on "Woman's Building on the State Fair Grounds."

Mrs. Oglesby delivered the following paper:

"We have so long been studying only books in our public schools, that domestic economy and the use of the hands, is fast growing to be one of our lost arts. In response to a universal return of interest in this practical part of life, the members of the State Board of Agriculture and the Farmers' Institutes throughout Illinois, desire to erect a 'Woman's Home Building,' on the State Fair Grounds, where the initial knowledge of this some time lost practice may be sown, and in time brought to the full perfection that intellectual study now enjoys. It is of much interest to know that cooking is now scientifically taught abroad in all the civilized countries in the public schools. Germany and Switzerland lead with this most important branch of domestic knowledge, followed by France and England. There is more said and done on this subject in Germany and Switzerland than in America. True we have introduced in some of our public schools this most necessary study and with our accustomed youthful energy, may, in two years have far outstripped our older neighbors. We are a country yet adolescent and 'do with our might whatsoever our hands findeth to do.'

"As the first and most important exhibit in our proposed Woman's Building, will be the scientific combination and preparation of food, to secure its full value for human beings, I preface my notes by asking especial attention to the importance of having our girls taught domestic economy. To me, (perhaps because I am only a domestic woman) the first and most imperative knowledge for girls is 'home making.' The domestic science which includes food, its nutritive and healthful combination and preparation, sanitation, dairy, economy and needle work.

"Our girls are taught many things in the public schools that might better be left out, and the more constantly used and demanded knowledge of home-making substituted. Domestic science does not come to our girls intuitively, as many people imagine, but is the result of much training, thought and experience, the last, that hardest of all teachers. Order is Heaven's first law. 'A bride adorned for her husband,' is in scripture the highest type of beauty. 'Home' is the most sacred word, the dearest spot on earth. A woman who can make home beautiful, is she not the strongest and most powerful factor in civilization? Is it not vitally important that the young girl chosen by the young man for his helpmate, should already know how to make the new home comfortable and beautiful on the wages or income the man is expected to provide? Ought she to come to her husband without this knowledge? When hearing of proposed marriages we are told the man is industrious and able to take care of the girl, do we ask if the girl has the requisite domestic and economical training to bring to the new home as her share of the partnership? How often must she struggle through ignorant experiment to the proper care of the husband's money confided to her charge? Or becoming discouraged by the many and fatiguing difficulties confronting her, resign herself in despair to getting on 'anyhow.' Shall training them in home-making be withheld from her? Shall we not all, men and women, see to it that home-making by early training in domestic economy may become so much easier, so much more economical, so much more scientific that all our girls shall prefer it before all other employments?

"As I write I am reminded that some of the most accomplished home-makers have been the greatest rulers, scientists, and authors. Maria Theresa, empress of Austria; Mary Somerville, author of the first physical geography, and Harriet Beecher Stowe, whose 'Uncle Tom's Cabin' has been translated into more languages than any book ever written, except the Bible. And so

we might enumerate famous women whose first thought was the domestic circle of home. While it is necessary that some of our heroic young girls must go out into the business world, that sad fact need not prevent them from acquiring a knowledge of domestic arts, and we believe they may add (as famous women have done) to this business knowledge the first and important one of 'home-making.' The above notes but faintly show of what inestimable value to women this gift of the woman's building will prove. We believe it will inaugurate in our public schools the practice and study of domestic economy. The Woman's building should be designed by a woman architect, the rooms (as far as possible in a public building) to be what a home requires. A conveniently planned kitchen in the most complete working order, a dairy, laundry, sitting room and sleeping rooms. In this fair building, doubly 'fair,' we would demonstrate and exhibit the easiest (because the simplest is always the best) way to cook, wash dishes and clothes, care for milk, make butter and cheese, all as far as possible with the labor saving devices invented and shown by the exhibitors at the State Fair. So by knowing 'how' to do, domestic work (instead of being drudgery) may become a beautiful and fascinating employment. It will be of inestimable value to see the simplest manner of food preparation, to ventilate and purify kitchen, sitting and sleeping rooms, to wash the articles used, to keep everything pure and sanitary with the labor saving devices proven to be practical.

"The seats in the cooking exhibit will be raised above the working platform as in an opera house, so the work will be well in view of the audience. (The dairy and lunch rooms and other apartments on the first floor.) There ought to be also in this building what we had at the Columbian Fair, a room for public comfort for women taken suddenly ill, and for rearrangement of toilet, and a place for the babies, (God bless them). For many mothers see a fair or any other amusement but seldom, unless accompanied by these small angels. One week before the fair, (the Monday before the opening Monday) the cooking lectures will begin, under the most competent instructor on domestic science in the United States. It is proposed that a representative young woman from each county, (the first year from the county seats, thereafter from other townships in numerical order) shall be selected by the Board of Supervisors, her expenses to be paid to and from the fair, to receive this two week's course of instruction. There will be twelve lessons given, in addition to the lessons in marketing, preparation and economical serving of food under this famous instructor in domestic science. The women having the advantage of this fortnight's study will be required to give representatives of each family in her township the benefit of her instruction. This might be easily accomplished by arranging a meeting of one member from different families in some convenient house in a neighborhood, each one bringing such articles of food to be prepared as the young instructor may prescribe. These twelve lessons, during the year, would then be taught to many people. It would be very useful too, if the women would give some of these lessons at the county fairs and Farmers' Institutes, so that as many people as possible may profit from them. Mrs. Rorer, president of the Philadelphia Cooking School, and world famous as the lecturer of the Indian Corn Kitchen in the Woman's building at the Columbian Exposition, will, it is hoped, take charge of this exhibit in 1899. Mrs. Rorer is not only an accomplished cook, fine scientist and hygeneist, but a philanthropist as well, for, seeing the toilsome way in which untrained women do their domestic work, she promises, free of charge, one week of her time. The lessons will begin one week before the fair opens, and continue through the week during the fair. I desire to call your attention to the following selections from Mrs. Rorer's address to her graduating class of 1896, in Philadelphia. I hear with much satisfaction that several of her pupils are now teachers in the Chicago public schools, where domestic science is being taught for the first time.

MRS. RORER'S ADDRESS.

"We feel that the day has come in our social history when it is absolutely a burden for the average young woman to enter a household as its head. Whether the household be rich or poor, large or small, there is nothing in our modern education to fit her for her duties and responsibilities. We fully

realize these conditions can not be changed by crude theories, that only a practical knowledge of cookery and household management can remedy the evil. While we live in a time when the whole atmosphere is clouded with schemes for the better education of women, do these schemes educate her for her life or living? She enters college thinking at the time that a profession, whatever it may be, she will follow through her days, and she earnestly and persistently prepares for it to the exclusion of every other thought. In a short time she has accepted the yoke of matrimony, a position very foreign to that for which she has been prepared, and she awakens to the fact that her education has been neglected in a vital point. We pity her; her future looks dark and doubtful. She enters that school of experience, a school without a guiding hand. There are some duties inseparable from woman, they have their origin in her being, and nothing can alter this. To her is assigned the training of the young, which means the building of the structure. It is her right and duty to prepare herself in the highest degree to fill the position assigned to her by the Maker of the universe. To assist her in this and correct our modern system of education the schools of domestic economy have been established. The Philadelphia Cooking School makes practical work obligatory. It is required of each pupil before a diploma is given, that she shall without suggestion, market for, cook, and serve a perfect meal: preceding this of course are taught the fundamental principles of the chemical composition and nutritive value of foods in common use, the nutrition in health and disease. Therapeutics of diet are lightly treated, as you can readily understand that so vast a subject could not be considered in a single year. Educated cookery is as much a science as chemistry, and therapeutics of diet as vast a subject as therapeutics of medicine, and must therefore be given the same time and study.

"To the class of '96 I congratulate you on the work you have been able to accomplish this school year. It means to your families economy, health, comfort and happiness. It means to your home that particular power gained by knowledge and increased influence in one's household. To those who have selected this profession I have many commands. First and most important is to impress upon you the great responsibility you have undertaken—the proper feeding of human beings, on which depends human life. Practice what you preach, and preach rational, economical and honest living.

"The profession you have chosen is a laborious one, and unless you are especially called to it you had much better choose another, where you will be a more useful and less dangerous member of society. We consider cooking one of the highest of the civilized arts, because it puts into operation every faculty we possess, and because the better the cooking the higher the civilization and the greater our happiness. It is really the settling of the difficult economical questions of the day, because it is the foundation of all true work. Men may have a well-trained brain, but if that brain is not nourished of what use is it? Also remember that after a person is well fed and is taught how to eat, he is civilized.

"In an English paper I find an admirably written article on the domestic teaching of girls, which conveys much information in a brief space. With this clipping I conclude my notes."

AN ECONOMIC COOK IS THE BASIS OF A PROSPEROUS HUSBAND.

"'There ought to be,' says the writer, 'a law by which every woman, on attaining her twentieth year, shall be able to produce a certificate proving that she has acquired all the knowledge of a thorough, plain cook.' A special examining body, appointed by the government, would alone have the power of granting such a certificate.

"This is a novel idea, but it is a good one, too. If obligatory military service for young men, why not obligatory culinary instruction for women? As a pendant to this, we hear that in the neighbourhood of the Boulevard de Clichy, in Paris, a new club for women has been opened. It is one, moreover, which will not be jeered at by the opposite sex, for the members trouble themselves neither about politics nor so-called 'women's rights'; their only

desire is to encourage and promote the art of cooking well and economically. They feel the need of a reaction, of putting into practice a well known old French saying, 'petite cuisine fait grande maison.' This has too long been a forgotten maxim whilst the fashion for the expensive 'cuisine classique' prevailed, and we all know that wholesome food, well chosen and prepared with care at moderate cost, can only further the welfare of the household, and increase the income by such amounts as are too often wasted by love of show, or ignorance of culinary matters.

"There are, even in France, a good many prejudices to overcome. Mothers will think, even if they do not always express their thoughts in so many words, that the kitchen is not the place for their daughters, and the latter often, in their youthful ignorance, consider such 'paltry' matters as beneath their notice; but, after all, such persons must be in the minority in the course of time, for these feelings are merely the outcome of narrow-mindedness and lack of common sense. Everyone who is well read has learned how the most beautiful and noblest of French chatelaines in the seventeenth and eighteenth centuries would grant to none the privilege of manufacturing certain dishes and preserves, but retained it as their own right. In the reign of Louis XIV. Mme. de Sévigné was renowned for the delicious waffles she made, of which she was, no doubt, as justly proud as are her countrymen of her fascinating letters; Marie Antionette's brioches were the only ones tolerated at the Petit Trianon, and rivalled those which made the town of Nanterre famous; the ill-fated Empress Joséphine herself collected recipes galore in the colonies, and carried them out for the First Consul, and so on, *ad infinitum*. Yet, in the face of all this, there is still a feeling of false pride that prevents our girls from taking an interest in, and learning the mysteries of the noble art of cookery.

"On the continent, especially in Switzerland and Germany, training schools in housekeeping and cookery have flourished for a long time, and we all know that they are no longer difficult to find in England. Still there seems a further step to take, and this point was accentuated in my mind during a recent visit to Switzerland, where I was favoured with a glimpse into a wonderful educational system. In Berne every person living in the town has the right to send his child to the secondary schools, where entirely free tuition is provided until the age of fifteen; after that each student pays a nominal fee, scarcely amounting to £3 per annum. The curriculum is extensive, the system of learning very general; French, English and Italian are all obligatory subjects, except, of course, among the younger children. All the instruction is given in German, French and Italian being the other two languages which prevail in certain parts of the country respectively, are naturally considered indispensable, whilst English proves a necessary subject in this land of tourists. This seems rather irrelevant, perhaps, but I merely mention it by the way, as the details of such liberal education must prove interesting to many of my readers.

"The point to which I am coming is this: In spite of the fact that the home education of the average middle and upper middle classes in Switzerland is much more general and practical than it is in this country, and notwithstanding the facilities already offered by the various schools for housewifery, which are numerous and quite accessible to persons with small incomes, the authorities have lately decided that girls leaving school without elementary knowledge of matters relating to the household, will not have completed their education to the satisfaction of all.

"For the first time now—and this step is going to be imitated rapidly in other Swiss towns—a new school has been built, the basement of which is fitted up for the requirements of tuition in laundry, cooking, management of stores, etc. After a certain age every student is bound to attend the course of this particular department, which will come into the regular curriculum. The school I had the privilege of visiting holds 900 girls, and the numbers increase yearly. The advantages offered by the authorities are open to every inhabitant of the town, whether Swiss or foreign.

"The above details speak for themselves; some efforts have been made at different times in London to introduce housekeeping and cookery as extra subjects in secondary schools; or girls, on leaving the high schools at which

they have been educated, have followed the courses given at such well known establishments as the National Training School for Cookery, Mrs. A. B. Marshall's classes, and others of a more or less private nature. But would it not be more practical to add to the syllabus of the upper forms a regular course which, as far as cookery is concerned at any rate, could be carried on for two terms out of the three (the midsummer term being rather too hot for the purpose). It would, however, naturally be better to hold the classes all through the school year, merely on principle, and because breaks are never beneficial; moreover, if the time is well chosen, and the arrangements well carried out, a couple of hours devoted to culinary matters once or twice a week could not really have any bad effects.

"The additional department might include the elements of cooking, fine laundry work, practical demonstrations on household economy, and domestic management generally. If these subjects were carefully taught it would still be possible for girls to go deeper into the matter, should they choose to do so after they have left school; at any rate, they would be more fitted to the life every woman has to live, and for the duties which are essentially hers in whatever station she may be.

"An attempt at starting something of this kind was made at the beginning of the year in the Church of England high school near Eaton Square, with very satisfactory results; but, before we can hope to see that change become more universal, the coöperation of parents and teachers must become much closer and much stronger than it has been hitherto. There would be less anxiety in early married life, and family 'jars' would be much less frequent if our girls were taught that in the quiet and sometimes seemingly monotonous level of home there is much for them to do and duties to perform, which, if thoroughly and heartily accomplished, will win as much regard for them and as many laurels as the passing of examinations on limited subjects, or taking university degrees."

M. N.

Mr. Moore: Mr. J. M. Hollingsworth, of Ridge Farm, will give us a paper on the "Profits in the By-Products of the Farm."

Mr. Hollingsworth delivered the following paper:

PROFITS IN THE BY-PRODUCTS OF THE FARM.

J. M. Hollingsworth, Ridge Farm, Ill.

By-products are those of secondary consideration. Things which the farmer does not plan to produce—so much as finds it necessary to produce in order to save waste, keep up the fertility of the land and carry on his business at a profit.

Just what these by-products are in any particular section or on any given farm depends on circumstances. Even in the same neighborhood one man's by-product may be another's main product and both be good and successful farmers.

Few, indeed, were the Illinois pioneers who did not produce their own household supplies, make their own clothing and many of their rude implements. They bought little and produced little surplus.

Now we buy—I had almost said everything, because we have an immense amount to sell. As individual farmers we spend incomparably more money than our grandfathers did—we have vastly more to spend. After all, the secret of their success was what must still be ours—economy. No matter if we do have so much more to market, cheap production is still at the foundation. Even if we do buy from the four quarters of the earth, the balance of trade must still be in our favor. While modern conditions give us many opportunities to perfect special products of superior excellence for special markets, that same problem of how to carry on our business successfully, supply our ever increasing wants and accumulate a surplus, constantly confronts us as it did our forefathers.

We can never manufacture woolen and linen goods, clothing, shoes, candles, etc., as our grandparents did. They did well in their day, but times and conditions have changed. It remains for us to keep alive that same spirit with which they worked, but to employ our energies according to our present conditions. The next generation will have still other lines of labor, according to the circumstances which shall then exist. One of the most hopeful signs of the times is the readiness with which our people take up with new and practical ideas and apply the discoveries of modern science to daily life; but it will be well for us to combine in our work the old spirit of self-help with the new spirit of American progress which is everywhere carrying our people to the front among the nations of the world. Such a combination insures that lasting feature which is the basis of all agricultural prosperity, that great agriculture which descends from father to son, which is as enduring as time; the solid rock on which rests our country's greatness.

The by-products, then, include those things which all the members of the farmer's family produce, to the end that he may operate at a minimum of expense and have a maximum of capital and facilities for his main products. In fact by-products as opposed to buy products. Thus the butter and eggs, the vegetables, the truck, the fruit, the poultry, the honey, contribute both to the cash account of the farmer and to the healthfulness and cheerfulness of his family. Add to this the long list of canned fruits and jellies, dried fruits and corn, preserves and pickles, sausages and mincemeats, etc., which the good wife persists in laying up in store in quantity limited only by the amount of raw material available (and the nearness to the bottom of the sugar barrel), and in quality which no commercial product can approach; and we begin to get some idea of what the by-products of the farm are worth to us. But if the members of the farmer's family choose to develop some of these products and convert them into specialties of more than ordinary excellence for a special market, they are sure to have not only an added source of pleasure, but of profit as well.

But here we touch the ticklish question of a place to sell our stuff—a special market. It is much easier to portray how the farmers may produce the stuff—even easier to actually produce it—than to find the market. At the risk of being too sectional, I shall enter a little into detail on the subject of the good wife's market. I can only tell what I know, and shall tell only the truth, keeping in mind the thought that in other sections of the country the trouble may be along other lines.

I live in a grain and meat producing section. Most farmers' wives make butter and raise poultry to sell. There is a fair cash market for poultry to hucksters and shippers which gives them a handsome margin of profit. The butter is traded at the grocer's. There is no grading of the product. The most detestable grease brings just as much as the choicest pound print. One price to all. I have personally solicited every grocer in my own town to pay for butter according to its merits. They have all said to me, "I can't do it. If I pay Mrs. Brown less than Mrs. Jones I will have a war on my hands, and will lose Brown's trade." I knew a grocer to give a farmer's wife 45 cents worth of goods in exchange for three pounds of her butter, and the minute the door closed behind her he sent his clerk out to chuck that butter into the rubbish pile. The grocers pay a premium on bad butter and curse the stuff after they get it. Now that thing happens right along in lots of Illinois towns.

Scores of such problems confront the farmer who has only a small surplus of by-products to sell. I do not believe the case is hopeless. Wherever there is an evil there must be a remedy. Whatever the remedy may be in any given case, I believe the disposition of the matter is within the reach of the farmers themselves. Doubtless one of the first things to do is to get farmers to become acquainted with one another. To meet together as friends and neighbors, and candidly discuss their difficulties in a business way, and to set about removing these difficulties as a class. To work intelligently together to a common end. To have one purpose as a community, and carry it out. In short, to co-operate.

And I can think of no better place to begin the education of country people long these lines than at county farmers' institutes. Then extend it in town-

ship institutes. These meetings furnish the best possible opportunity for the practical discussion of such questions, and herein lies much of the good to be accomplished through their influence.

But we must look further. In all the operations of the farm, the ultimate end is the highest good to the farmer and his family. And we may include, also, the well being of his friends. We may have in mind all that influences his relations to society and the state.

The successful farm manager of to-day needs to be as fully equipped as a general. The rearing and feeding of stock, the proper construction of buildings, the peculiar characteristics of soils, the best cultivation and care of crops, the most practical methods of destroying weeds and insects, the principles of farm machinery, the economical management of labor, the shifting demands of the market, and the preparation of his products to meet those demands, are only some of the general lines along which he must be posted. Put the man down on a given farm and he must then make a specific application of the more general knowledge to his immediate surroundings. Everything has to be gone over and specialized. Every ounce of energy and every inch of soil needs be made to yield some valuable product. Every bit of crop needs be fed to the best advantage.

These things make the farmer a student, a thinker, a planner.

And he can not hope to successfully do all these things alone. I can think of no other occupation in which man so sorely needs a helpmeet as in farming. I can conceive of no other enterprise in which woman can be so helpful as in farm management. There never was any question as to her ability and readiness to work in the farm home. There should never again be one as to her place on the staff of farm managers. Her aptitude at getting man into trouble is ancient history. Her ability to get him out is beyond all question.

There is nothing better as an investment in any home than household and kitchen conveniences. There is nothing so good in an ever-busy farmer's home where the good wife's time is more fully occupied and worth more than in any other.

The fresh cold water on tap, the hot water tank, the dumb waiter, the roomy double cupboard, the sideboard with apartments, the light, portable work table, the wind, or other power, to run the washer and churn while mother rests, all bring better and surer returns than the choicest gilt-edge stocks in market.

Woman is readily economical. It is easy for her to be careful. She is not afraid of small things. May it not be that the stitch-in-time habit has become so fixed that it influences all her work? In the farm practice of Illinois she has always held the balance of power and her influence has been on the side of good homes and economical conduct of business. Her forethought in the production of supplies for home consumption and for sale has made the difference between success and failure on many a farm. Careful attention to the by-products will not only tide us over times of agricultural depression but enable us to make substantial gains throughout all the years to come.

But you are saying "how can the already overworked farmer and his wife do more? Are they not now as busy as can be?"

A good deal depends upon the point of view. There are those who are even too busy. Whose labor is too monotonous and exacting. Who are driven by their work as a slave to his task. It may be that honest employment, although monotonous and exacting, is better than illness even part of the time, but sometimes we may fail to catch the true idea of helpfulness in all the operations of the farm.

The business of the farmer is pre-eminently a coöperative one. There is room for many workers on any well regulated farm. In fact most farms need more workers. Or to state it differently, many farmers are land poor. Instead of reaching out after more land we need to stay at home and cultivate what we have. The energies of this generation should be expended on fewer acres. We have seen enough of spread eagle farming. It is true that

some farmers may operate extensively, but we may safely say that whenever the farmer is busily employed and then allows the fertility of his land to run down, he has too many acres.

What, then, can we do?

Make the family a firm. Father and mother are equal partners. Children are associate partners, whose responsibility and interest increase as the years go by. But they should be taken into partnership *at first*. Don't wait until they are grown up. Let them grow up in the business. Each has his or her share in labors and successes every season. The labors may be varied in different years so as to give practice in all lines. Each must be made to feel that he is a member of the firm and that the success of the business depends on him. Hold family councils. Plan for the coming season. Talk freely with the children. Get their views. Enlist their sympathies. Draw out their ideas. Apportion the work so that each shall have a prominent part. Discuss these matters daily, until the idea that we are responsible for the outcome of the year's work, and that we shall share in the success wrought out, gets possession of each member of the family. Teach children the importance of little things. Show them the relation of each particular task to the business as a whole. And the proceeds must be equitably divided and invested as well as the labor. We should tell our children that if we all produce so much we shall have so much money to use. That if they want money they must make money. Let all feel that our farm is the best and of first consideration. That we have a real, true home. "Home first, the world afterward." Remembrance of the joys of the old home is a tremendous power in the formation of character.

Who shall say that children reared in this practical way will not take an interest in farming? They have breathed it every day. They have delighted in its sweetest charms and reveled in its glorious successes. They have patiently toiled and labored to overcome its difficulties. They have overcome. They have become masters of practical agriculture. Masters of practical life. Masters of the situation wherever they may choose to go. For whoever heard of a broad-minded, successful farmer who couldn't do anything but farm? Who can name a farm boy who has grown up with the love of farm life borne in upon him until it has become a part of him, who has played and worked and studied and grappled with mother nature in her fields and meadows; who has borne the burden and heat of the day, and slept the quiet sleep of peace at night; who, I say, can name such a boy who can not go into any chosen field of honest endeavor in our land, do its work well and succeed in the doing?

The world needs such boys and such girls; such men and such women. They are pre-eminently a by-product of the farm.

But there is danger that the ambitious young farmer may include too much in his list. There is an evil tendency to undertake too many things. A man should grow into his business, not jump into it. Nothing should be undertaken which can not be well done. And each should adopt his own plan of work. Avoid too many irons in the fire. Don't try to copy everybody, but make a thorough, special study of your own conditions, soil, location, markets, capital, individual tastes, and then suit your business to all these conditions. Many a man has tried to control circumstances and make the whole neighborhood serve him. Each man is a part of the community, and the sooner he recognizes that the better it will be for him, and the more time he will find to look after the interests of his farming in the little things at home.

And the closer the farmer keeps in touch with his neighbors, with society, with public affairs, with the great progressive American spirit of the age, the more interest he may find in the numerous details of his business. The broadening influence which general culture gives, strengthens the man for the

duties of daily life. The higher point of view which results from a better knowledge of men and affairs, enables him to see his own problems in a new light. He travels round his trouble, finds a weak point in it, and soon renders it insignificant.

This kind of work yields surest profit. It gives sweetest pleasure. It insures greatest success.

Mr. Moore: We will now have the pleasure of listening to an address by Prof. H. S. Grindley on "Foods: Their Cost and Value."

Prof. Grindley addressed the convention as follows:

THE NUTRITIVE VALUE AND COST OF FOODS.

Foods is a subject which at present is attracting much attention from all classes of people. It is a subject of vital importance to all, for the health, strength and welfare of human life largely depends upon the nutritive value and purity of foods.

The best farmers of Illinois study carefully the best methods of feeding their farm animals. They know the composition of the different feeding stuffs and what foods to feed in order to produce fat, or what combination of foods to use for the best production of milk. They try to feed their cattle in a rational, scientific and economical manner. Is it not worth while to study carefully the nutrition of themselves and their families, as well as that of their live stock? Just as poor feeding stuffs produce only poor farm animals, so poor human foods will produce people who are not capable of making the most and the best of themselves.

We must learn more regarding the foods which we use. There can be no doubt that much of the disease of man is due to poor food, poor management in selecting the diet and to improper cooking of food. Further, man's ability to do work depends upon the food which he eats. A man that is fed upon a well selected diet which has been properly cooked can do more and better work, either mental or manual, than the man who has been supplied with food without regard to proper selection, and with a food improperly cooked. This is a fact which many of our people fail to realize but nevertheless it is true.

Food for man, the cost of which makes up the large share of the cost of living of the great majority of people, and which has so much to do with the health and strength of every one, is a subject of which a large proportion of our people have very little definite knowledge. Is it not time that more attention should be given to this subject by the people of our State? In this country there has been expended much money, time and scientific labor in studying the foods used for animals, while the study of the foods used by man have been neglected and very little has been done upon a thorough study of such foods. However, this is a subject that from now on must and will receive the attention which it deserves from our National and State Governments, and our State Universities and Experiment Stations.

Food of all kinds serves two purposes in the body. In the first place it serves as fuel which burns in the body supplying heat for keeping up the temperature of the body and energy which is necessary for muscular and mental work. In the second place food supplies the body with material for building and repairing its tissues and fluids. In other words, the bones and the flesh of our body are made entirely from the food which we eat. From the same food we also obtain the energy to do both muscular and mental work.

The body in some respects is like a machine which uses food for fuel. The body, like the machine, burns the fuel by the aid of the air, and as a result energy in the form of heat and motion is produced. However, the body differs from a machine, in the fact that the fuel, that is the food, is used to build the body as well as to supply it with energy. This is not the case with the machine for it cannot be repaired by the fuel which it burns. In the machine the fuel burns quickly giving carbon dioxide, water vapor and nitrogen which escape into the air, and at the same time those small portions of the

fuel which do not burn form ashes and cinders. In the human body carbon dioxide, water vapor and nitrogen are likewise produced by the burning of the food, but the combustion takes place much more slowly. The machine is comparatively simple, constructed for one definite purpose; the human body, on the other hand, is most complex, and performs many different functions.

Food materials as purchased consist of an edible portion and refuse. The edible portion comprises those parts which can be eaten, and include the flesh of meat, yolk and white of eggs, wheat flour and numerous other things which present themselves to our mind. The term "refuse" includes those parts of the food which can not be eaten, for example, bones, entrails, shells of oysters, bran of wheat, peelings of potatoes, and so forth.

We make analyses of foods and feeding stuffs for the purpose of learning their value for nutriment and the proper ways to use them. In doing this, we classify the food ingredients into different groups and give to each group a certain nutritive value. Although foods are so different in appearance, chemical analysis shows that they are all made up of a comparatively small number of chemical compounds. These compounds are water and the so-called nutrients. In other words the edible portion of food is made up of water and nutritive ingredients, or nutrient. A nutrient is either a compound or a group of compounds which can be used by the body as food. The nutrients include protein or nitrogenous materials, fats, carbohydrates, and ash or mineral matter. As well known, examples of protein or the muscle-forming constituent of foods we have the gluten of wheat. The lean parts of meat and fish consists mostly of protein. The white of egg and casein of milk are other familiar examples of the nutrient protein. Fat is found abundantly in lard, fat meats and fat of milk or butter. It is also found as oil in corn, wheat and oats. As example of carbohydrates of food nutrients we may mention, the sugars and starches which occur in many grains and plants in large quantity but are found in meat and fish in only small amounts.

The mineral matters which occur in foods consist of salts such as phosphate of lime and ordinary salt or sodium chloride. The first three classes of nutrients that is protein, fat and carbohydrates are all organic, that is they can be burned, producing energy in the form of heat. In burning, these substances are entirely changed into gases and leave no solid residue. On the other hand the mineral matters will not burn and are left behind as a residue when organic matter is burned.

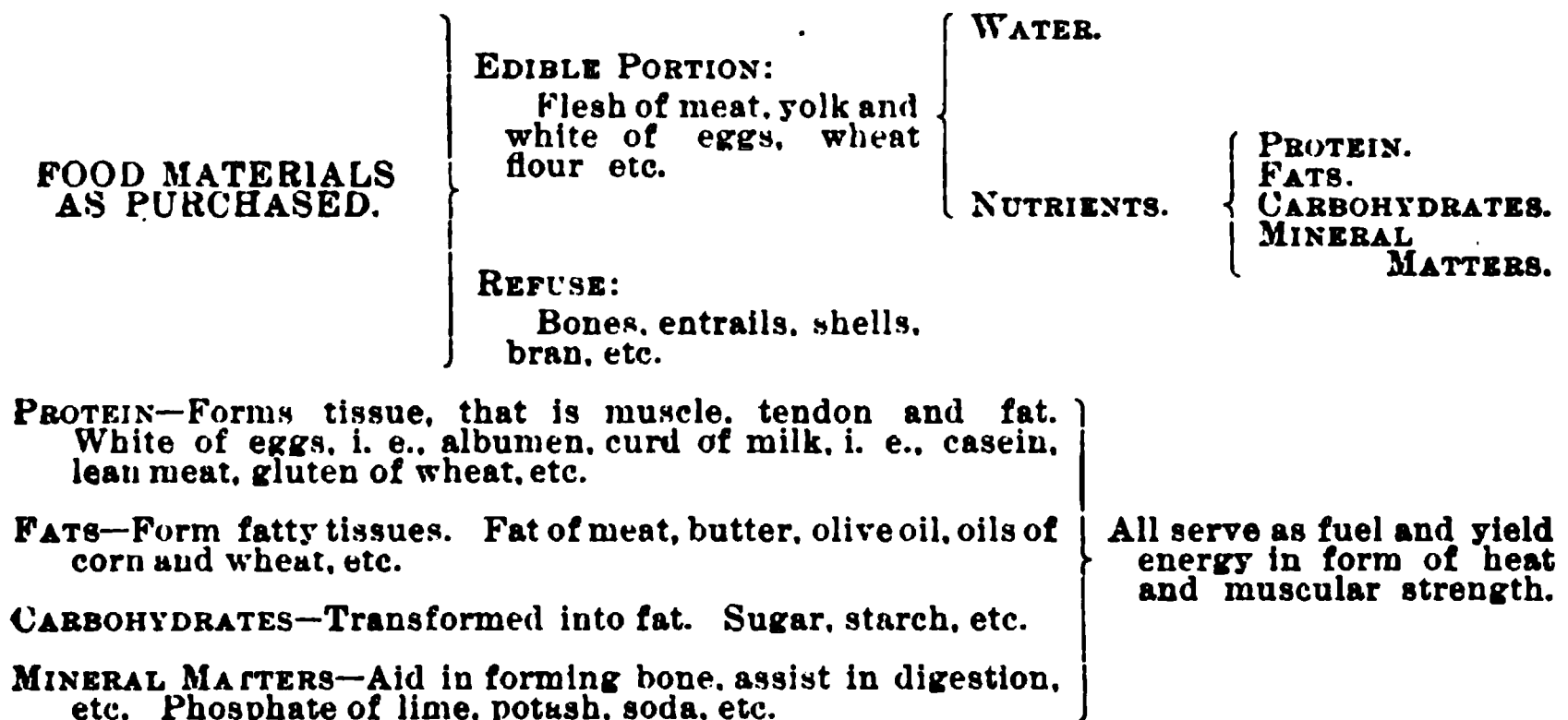
Now, let us consider for a few moments the part which each one of these nutrients play in nourishing the human body. Protein is the most expensive and the most important nutrient found in foods. The protein compounds are the only nutrients which contain nitrogen and they are therefore necessary for the repair of old and the building of new tissues. They are the materials out of which the greater part of the muscles of the body are formed. They are essential constituents of bones, tendons, nerve tissues, and all the vital fluids of the body. Every muscular and mental act of the body is carried on at the expense of some protein material. In addition to all this work protein also produces heat. In order to satisfy these numerous demands for protein, the food of man must contain a liberal quantity of these nitrogen compounds. It has been shown by a number of dietaries made in this country that our food as a rule do not contain enough of protein or flesh-forming substances. From these considerations, it is evident that we should make sure that a sufficient amount of this vital nutrient is always present in our foods. As we will see later, in studying Charts Nos. 2 and 3, lean meats and fish abound in protein. Cheese also contains a large quantity of protein. Among the vegetable foods beans, peas and oatmeal have a large proportion of protein.

The nutrients known as fats and carbohydrates do not contain nitrogen. They are the heat producing foods. Starch, fat and sugar burn in the body and yield heat and power. A pound of starch, when it is completely digested by the body, produces the same amount of heat as if the starch were burned in a stove. The fats and carbohydrates not only produce heat but they may also form fat in the body which is stored as reserve fuel for future use. These nutrients alone can not produce muscle or sustain life because they do not contain nitrogen which is a necessary element of all life or living matter.

The mineral matters or ash of foods are necessary food constituents. They are important because they assist in digestion, furnish material for the formation of bones and they also enter into the composition of all the vital fluids and every part and organ of the body. The facts which have been mentioned in the first few paragraphs of this paper may be more readily understood and fixed in the mind by referring to Chart 1, which is a reproduction of a chart prepared by Professor W. O. Atwater, for the U. S. Department of Agriculture and published by the Office of Experiment Stations.

CHART 1.

NUTRIENTS OF FOOD AND THEIR USES IN THE BODY.



Food is that which taken into the body, builds tissue or yields energy.

Food as was mentioned before serves two purposes. It supplies the body with material for building and repairing its tissues and fluids and it also serves as fuel which burns in the body, supplying heat for keeping up the temperature of the body and producing energy for work. The value of a food of the first purpose here mentioned is shown by its chemical composition, that is, by the amount of different nutrients which chemical analysis shows it to contain. However in order to show its value as a heat producing food it is necessary to make another determination. The power of foods to produce heat in the body is determined by burning them in a closed vessel called a calorimeter in such a way that all the heat is collected and the amount determined exactly. For the purpose of comparing the heat producing powers of different foods we must select a unit of heat. The unit of heat usually taken is known as the calorie which roughly speaking is the quantity of heat required to raise the temperature of one pound of water four degrees Fahrenheit. A pound of sugar or starch when burned under such conditions that all the heat is utilized will produce 1860 calories. In other words, a pound of sugar or a pound of starch if burned in such a manner that all the heat is used for warming water, would increase the temperature of 1860 pounds of water four degrees Fahrenheit. A pound of fat will produce 4,225 heat units or calories; 2.25 times more heat than a pound of starch. A pound of protein when burned in the body will produce the same amount of heat as a pound of starch, that is 1,860 calories.

In determining the value of any food there is to be considered first its composition, that it, will it furnish the proper amounts of nutrients needed by the system. In the next place, there is to be considered the digestibility of food, that is the extent to which the nutrients are capable of being made use of, when consumed as food. The palatability or agreeableness of the food to the taste and the price of food must also be taken into account.

The relative nutritive value of any food is shown by comparing its composition with other foods. Chart 2, page—shows the composition of a number of the common food materials of Illinois in ordinary use. The different kinds of nutrients and non-nutrients are represented by bands and the broad black lines represent the number of calories of heat which the food is capable of furnishing to the body. It will be seen from this chart that as a rule the animal foods and vegetables, that is fresh tomatoes, cabbage, onions, string beans, and so forth contain a large proportion of water while the cereals, for example wheat flour, corn meal and rice contain only a small quantity of water and a large amount of nutrients. The meats are chiefly nitrogenous foods while the vegetable foods as a class are rich in carbohydrates. Cheese is a concentrated food containing much protein and considerable fat. Foods which have the most fat and the least water have the highest fuel value. Butter and fat pork consist exclusively of fat and they therefore have the highest fuel value of any of the foods given here. Chart No. 3, also shows the composition of the food materials of Illinois. Here however, the qualities of the different constituents forming the food is expressed in per cents, that is as parts in one hundred parts of the food. Thus beef round contains 7.26 per cent refuse, veal rib 19.00 per cent refuse, while milk, butter, wheat flour and so forth contain no refuse. Further beef round contains practically 61.00 per cent of water, fresh tomatoes 95.00 per cent while pure granulated sugar contains no water.

CHART 2

COMPOSITION OF THE FOOD MATERIALS OF ILLINOIS

NUTRITIVE INGREDIENTS, REFUSE AND FUEL VALUE

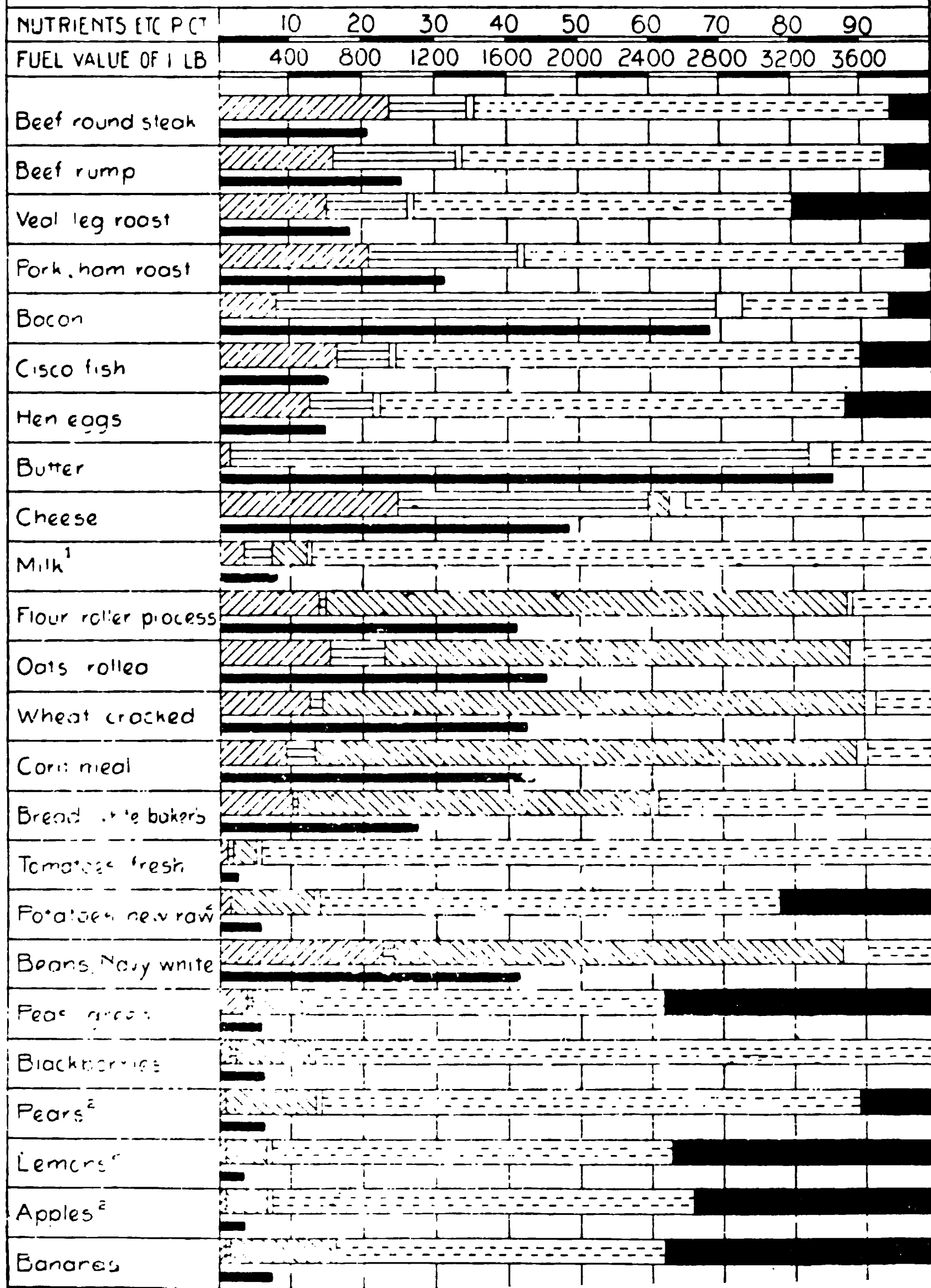
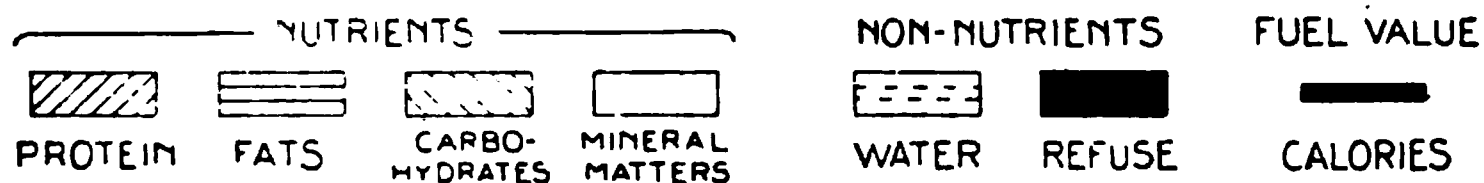


CHART III.

COMPOSITION OF THE FOOD MATERIALS OF ILLINOIS.

Nutritive Ingredients, Refuse, and Fuel Value.

ANIMAL FOODS.	Refuse....	Water.....	Protein....	Fat.....	Carbo- hydrates.	Mineral matter....	Total nutri- ments....	Fuel value per pound
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Calo- ries.
Beef, round steak.....	5.86	62.27	20.37	10.64	.....	.95	31.96	833.
Beef, round roast	8.91	53.79	16.45	20.43	.....	.77	37.65	1172.
Beef, rump	6.25	58.86	16.40	17.23	.....	.86	34.49	1033.
Beef, tongue	9.22	69.18	20.18	.76	.....	.99	21.93	407.
Beef, liver.....	7.28	65.63	20.21	3.11	2.45	1.32	27.09	553.
Corn beef .....	.....	45.00	13.28	32.69	.....	9.99	55.96	1626.
Veal, leg roast	19.58	52.61	15.37	11.09	.....	.87	27.33	754.
Veal, leg steak	9.78	64.44	17.15	7.89	.....	1.00	26.04	652.
Pork, ham roast	3.73	54.84	20.64	20.41	.....	1.03	42.06	1245.
Pork, shoulder steak	6.64	53.03	15.48	24.57	.....	.79	40.84	1625.
Bacon	6.18	20.92	8.02	61.34	.....	3.78	73.14	2738.
Fish, Cisco	10.11	65.61	16.27	7.57	.....	.87	24.71	622.
Fish, Lake trout	40.73	43.18	10.59	4.82	.....	.57	15.98	400.
Hen eggs.....	12.14	65.65	12.21	9.05	.....	.95	22.21	609.
Butter .....	.....	14.56	1.22	80.90	.....	3.33	85.45	3437.
Cheese .....	.....	35.69	24.54	34.50	2.99	2.29	64.32	1948.
Milk (average of American an- alyses) .....	.....	87.00	3.30	4.00	5.00	.70	13.00	325.
VEGETABLE FOODS.								
Flour, roller process.....	.....	12.05	13.66	1.10	72.71	.47	87.94	1653.
Flour, Graham.....	.....	10.63	13.56	1.80	71.90	2.11	89.37	1666.
Corn, meal .....	.....	9.58	9.44	3.95	75.54	1.49	90.42	1747.
Oats, rolled .....	.....	10.09	15.31	7.84	64.82	1.94	89.91	1821.
Wheat, cracked .....	.....	8.93	12.38	1.67	75.40	1.62	91.07	1703.
Maccaroni.....	.....	11.10	15.94	.30	71.73	.93	88.90	1632.
Rice .....	.....	12.96	11.25	.13	75.44	.22	87.04	1618.
Crackers .....	.....	9.62	12.19	11.06	64.24	2.87	90.38	1889.
Crackers, oyster .....	.....	4.60	17.25	11.35	65.26	1.54	95.40	2014.
Bread, white bakers' .....	.....	38.97	10.13	.51	49.18	1.22	61.03	1103.
Bread, Graham .....	.....	34.94	10.80	.57	51.91	1.78	65.06	1190.
Sugar, granulated .....	.....	.22	.....	.....	99.68	.10	99.78	1854.
VEGETABLES.								
Tomatoes, fresh .....	.....	94.67	1.01	.22	3.64	.50	5.33	96.
Cabbage.....	16.39	77.12	1.33	.11	4.41	.64	6.49	111.
Celery	47.62	49.75	.53	.05	1.53	.51	2.62	40.
Potatoes, new.....	21.61	64.86	1.37	.04	11.41	.71	13.53	239.
Onions	8.14	82.23	1.05	.07	8.14	.37	9.63	174.
String beans.....	.....	91.55	2.32	.19	5.20	.76	8.45	148.
Beans, navy, white .....	.....	10.33	22.19	1.66	62.27	3.55	89.67	1641.
Peas, green	49.79	37.86	3.83	.32	7.68	.55	12.36	227.
FRUITS.								
Blackberries.....	.....	87.15	1.29	.71	10.39	.47	12.85	247.
Raspberries.....	.....	82.86	1.83	1.58	13.10	.64	17.14	344.
Peaches	14.00	76.82	.76	.11	7.94	.37	9.18	165.
Pears	10.60	75.77	.57	.11	12.56	.39	13.63	249.
Lemons	36.94	56.35	.63	.10	5.66	.32	6.71	121.
Apples	33.61	59.49	.21	.05	6.48	.17	6.91	127.
Blueberries, canned.....	.....	89.07	.35	.31	10.02	.25	10.93	206.
Huckleberries .....	.....	81.95	.59	.59	16.60	.27	18.05	345.
Bananas.....	37.79	46.15	.81	.41	14.21	.63	16.06	297.
Oranges.....	35.77	56.41	.72	.....	6.77	.31	7.80	139.

In our work upon the study of foods at the University of Illinois, we have analyzed all these different kinds of food materials. In order that the results of the analysis of the common foods used may be more readily understood and fixed in the minds of those who are not familiar with the details of such work, we have prepared a collection of foods. The main part of the exhibit consists of what may be termed displayed analysis in which the starch, oil, water, and other substances contained in the food materials are shown in bottles. In this manner the actual constituents of wheat flour, bread, eggs, potatoes, meats and other foods may be seen at a glance.

I will take only a few minutes to explain these analysis. The large bottle in Chart 4 contains 1,000 grams of rolled oats, from which, by chemical analysis, we have separated all of the four products in the proportion indicated by the quantities given in each one of the other bottles. From a quantity of rolled oats equivalent to that which is contained in the first bottle we have separated 648.2 grams of carbohydrates that is 64.82 per cent. This quantity of starch is shown in the second bottle. From the same quantity of rolled oats we have separated the quantity of protein shown in the third bottle. This represents 153.1 grams of protein or 15.31 per cent. That is 100 parts, or 100 pounds of rolled oats contain 15.3 parts, or 15.3 pounds of protein. In the same manner, by means of chemical analysis, the quantity of water contained in the fourth bottle has been removed from the 1,000 grams of rolled oats. The fifth bottle contains 78.4 grams of fat, which represents 7.8 per cent of the rolled oats. And if we should burn all of the rolled oats in the large jar there would be nothing left but the residue shown in the sixth bottle. This is the ash or mineral matter and it weighs only 19.4 grams, which is equivalent to 1.9 per cent.

Chart 4. Photograph of the displayed Analysis of Rolled Oats.

In the same manner we have in Chart 5 the displayed analysis of corn meal. Notice the difference between the corn meal and rolled oats. 1,000 grams of corn meal contain only 39.5 grams of fat, while 1,000 grams of rolled oats contain 78.4 grams. There is twice as much in the case of rolled

oats. The differences in the quantities of protein is also quite noticeable. In the case of rolled oats there is 153 grams of protein and only 94.4 grams in the corn meal. In the same way further comparisons of interest could be made but we have not the time at present to do so.



Chart 5. Photograph of the displayed Analysis of Corn Meal.

As far as chemical analysis is concerned the rolled oats is a more nutritious and valuable food than corn meal. But chemical analysis does not show all that is necessary regarding the desirability of one food above another. In all cases the individuality of the consumer must be taken into consideration. The food must have a pleasant taste and agree with the consumer. Some people can not eat some foods which are in every respect healthful and beneficial to most people. These are peculiarities which can not be accounted for at present.

In determining the value of foods, the digestibility must also receive attention. The value of food, for the support of the body depends not only upon the consumption and palatability, but also upon the quantity of the nutrients which the body can take up from the food and use for its support.

Thus far the University of Illinois has made no experiments upon the digestibility of the common foods of this state, but is now commencing an extended study of the digestibility of the common foods of this State. The United States Department of Agriculture, under the direction of the Office of Experiment Stations and Prof. W. O. Atwater, has made a number of experiments upon the digestibility of milk, eggs, bread, potatoes and other animal and vegetable foods. From them some general deductions have been drawn. Leaner meats are probably more easily digested than those containing more fat. Generally speaking, it has been found that the protein of vegetable foods is less digestible than that of animal foods. For instance, one-fourth or more of the protein of potatoes and beans may escape digestion and thus be useless for nourishment. It is ordinarily assumed that the small amount of carbohydrates in meat and fish is entirely digested. Carbohydrates other than fiber, which make up the larger part of the vegetable foods, are very digestible. The fat in both animal and vegetable foods differs in digestibility under varying conditions.

Finally, in determining the value of a food we must also consider its cost. In determining the economical value of food materials we must compare their cost as bought with their composition or the quantities of nutrients which they contain. If a food contains only a small amount of nutrients that is protein, fat and carbohydrates, and is high in price, it is evident that it is not an economical food, but on the other hand it is really an expensive food. For example, in Chart 6 notice the price and composition of lemons. Here we obtain a very small quantity of nutrients and at the same time pay a high price for the same. Lemons at this price are an expensive food material.

Foods which supply a large quantity of food constituents at a reasonable price are evidently cheap and of the greatest value from an economical standpoint. Again, referring to Chart 6, notice what a large quantity of nutrients are obtained for twenty-five cents from wheat flour, graham flour and corn meal. The cheapest food is that which supplies the most nutrient for the least money. The most economical food is that which is the cheapest and the same time best adapted to the wants of the body.

Chart 6 shows the relative cost of the foods of Illinois and the amounts of nutrients obtained in different food materials for twenty-five cents. In the first place we have the name of the food, in the second column we have the price per pound of the food expressed in cents. In the third column we have the weight of the food expressed in pounds or decimals of a pound which could be obtained for twenty-five cents. In the fourth, fifth and sixth columns are given the weights of protein, fats and carbohydrates respectively, which would be obtained for the same amount of money. In the last column is given the fuel value expressed in calories. These figures represent the fuel value that is the power which the nutrients bought for the sum mentioned above, have of furnishing the body with heat and energy.

CHART 6.

RELATIVE COST OF THE FOODS OF ILLINOIS.
*Amounts of Nutrients Obtained in Different Food Materials for
Twenty-five Cents.*

KIND OF FOOD MATERIAL.	Price per pound.	TWENTY-FIVE CENTS WILL BUY.				
		Total food material..	Protein	Fat.....	Carbo- hydrates.	Fuel value.
	Cents.	Pounds.	Pounds.	Pounds.	Pounds.	Calories.
Beef, round.....	10.0	2.5	.49	.30	.....	2160.
Beef, sirloin	13.0	1.9	.30	.41	.....	2288.
Beef, rib.....	10.0	2.5	.34	.91	.....	4457.
Veal, rib.....	10.0	2.5	.37	.35	.....	2162.
Pork, ham.....	10.0	2.5	.52	.51	.....	3143.
Bacon.....	8.3	3.0	.24	1.84	.....	8220.
Ham, smoked	13 0	1.9	.42	.63	.....	3440.
Eggs (15c per dozen)	11.0	2.3	.28	.21	.....	1400.
Milk (5c per quart).....	2.3	10.9	.36	.44	.55	3549.
Butter	25 0	1.0	.01	.81	.....	3437.
Cheese.....	16.0	1.6	.39	.55	.05	3149.
Wheat flour, patent.....	3.0	8.3	1.13	.09	6.03	13721.
Wheat bread (5c per loaf).....	6.1	4.1	.41	.02	2.02	4612.
Graham flour	3.0	8.3	1.13	.15	5.97	13820.
Graham bread (5c per loaf).....	6.1	4.1	.44	.02	2.13	4879.
Corn meal.....	2.0	12.5	1.18	.49	9.44	21838.
Rolled oats.....	8.3	3.0	.46	.24	1.94	5460.
Rice.....	8.3	3.0	.34	.01	2.26	4854.
Sugar, granulated.....	5.0	5 0	.....	.....	5.00	9300.
Fresh tomatoes	5.0	5.0	.05	.01	.18	480.
Cabbage .....	.5	50.0	.66	.05	2.21	5550.
Celery	6.0	4.2	.02	.61	.06	168.
Potatoes (80c per bushel).....	1.3	19.2	.26	.01	1.19	4608.
Onions	4.0	6.2	.97	.01	.50	1079.
String beans	2.5	10.0	.23	.02	.52	1480.
Green peas.....	3.0	8.3	.32	.03	.64	1884.
Blackberries	5.0	5.0	.06	.04	.52	1235.
Raspberries.....	9.0	2.8	.05	.04	.37	963.
Apples.....	2.0	12.5	.03	.01	.86	1688.
Peaches.....	5.0	5.0	.04	.01	.40	830.
Pears.....	7.0	3.6	.02	.01	.45	896.
Lemons (30c per dozen)	14.0	1.8	.01	.01	.10	218.

It is evident that at the prices given the fruits are the most expensive sources of protein and energy. For example look at the results in the case of raspberries, blackberries, apples, peaches, pears and lemons. Notice in all cases what a small weight of the nutrients that is protein, fat and carbohydrates we get for the sum of twenty-five cents.

The next most expensive foods as judged by these results are the vegetables which, however, are not nearly as expensive as the fruits and furnish for the same cost more protein and energy. The meats as a class of food furnish more protein and also a little more energy than most of the vegetables for the same amount of money. However, the cereal foods are the least expensive and furnish much more energy and also more muscle-forming material.

In conclusion, I want to say if there are any members of this audience that are interested or would like to study this subject of foods, I advise them to send to the United States Department of Agriculture for the Farmer's Bulletins upon this subject. There is much to be learned from these bulletins and the Department is glad and also desirous of reaching as many people as possible by this means. Further, if you are interested in this work I would be pleased to have you give me or send me your name and address or the name and address of any one that you know to be interested. The University of Illinois has now in press bulletins upon this subject that will be of much interest to the people of this State who wish to give more thought to this subject.

H. S. GRINDLEY,

Associate Professor of Chemistry, University of Illinois.

Mr. Moore: Prof. P. G. Holden, Professor of Agricultural Physics, University of Illinois, will address us on "The Wastes of the Farm."

WASTE ON THE FARM.

By P. G. Holden, Dep. Agr'l Phys., U. of I.

This question is not one of my choosing. It was assigned to me and accepted for me by the powers that be without my knowledge or consent. One is often obliged, and sometimes he is willing, to admit of his own free will that he has faults, but he does not want to be told of them, and much less to have them enumerated and exhibited for criticism. Yet from the nature of the subject to be discussed the writer is necessarily placed in the attitude of a critic. But what is still more embarrassing to him is the fact that he has a farm of his own, which I fear is not entirely free from wastes.

The wastes of the farm and how to prevent them is, today, the most important economic question before the Illinois farmer. The wastes are something enormous, measured by millions upon millions of dollars annually, and when I say wastes I mean the needless wastes, those which it is in the power of the farmer to prevent.

It is a hopeful sign that these questions are receiving the attention of the more progressive farmers, as is shown by the nature of the experiment station's large and rapidly increasing correspondence.

We must admit that the agricultural methods of Illinois are more wasteful than those of some of her sister states. The soil was richer, and consequently less exertion was necessary to make a living and secure a profit besides. Largely for the same reason Central Illinois is more wasteful today than is the northern section. Illinois is in the great corn belt and with good methods larger crops can be produced than it is possible to raise in the eastern states, yet the average yield is nearly five bushels more per acre in Maine than in Illinois, and the northern section of the State out-yielded the central by four bushels per acre in 1898.

When land was cheap, and the fertility was unimpaired, when the population was small, and the prices of wheat and corn were high, any one could succeed upon the farm. Muscle power predominated.

Never before were changes in methods taking place more rapidly than now. Population is increasing and every acre must feed more people. The agriculture of Illinois is in a transition stage. The wasteful customs and practices of our pioneer agriculture are rapidly giving way to more scientific and exact methods. The conditions are such that it can not be otherwise. There are no more America's to conquer, no more Illinois and Iowa prairies for the government to open up to the homeseekers at a few cents per acre, destined in a single generation to make their possessors wealthy. The average Illinois farmer become wealthy not because of the best methods, but too often in spite of bad ones, and he is deserving of about as much credit as the man who by chance owned a quarter section in the heart of Chicago.

The needless wastes upon Illinois farms, if saved, would secure to agriculture profits enjoyed by no other business. The fact is no other business could survive such tremendous losses as are common in agriculture.

In the great cotton and woolen mills of the east the competition is so close and the margin of profit so small that the difference of 1-30 of a cent per yard in the cost of manufacture will prosper one establishment and drive another to the wall.

It is certain that most of these losses are matters of careless farming and extend to all the crops and operations of the farm.

Not one farmer in ten knows that there is smut in his oats, yet careful investigation extending over a series of years show that few fields are entirely free from it.

Mr. Clinton, of our Experiment Station, who has made a careful study of the matter, places the damage in Illinois at not less than 8 per cent, which would represent an annual loss of about \$1,500,000. In certain sections of the State the loss ranges from 10 to 25 per cent.

This damage can be entirely prevented at comparatively slight expense, by the use of the Jensen or "hot water treatment" of the seed before sowing. For example, the seed for 40 acres of oats can be treated at an expense of \$8.00 or 20 cents per acre. In other words, on the basis of 40 bushels per acre, the expenditure of 20 cents will increase the yield 3.5 bushels on an average, and in some sections the increase will be much greater than this. It will not generally be necessary to repeat the treatment oftener than once in three years if thoroughly done. The damage to the oat crop in Kansas, Michigan and other states has been materially reduced by this treatment.

The bunt or sinking smut of wheat, the scab, blight and rot of potatoes can be almost as effectually prevented by the proper treatment.

There are serious losses to the fruit interests of the State arising first from the setting of poor or worthless varieties, which are destined after years of care and expense to return to the farmer little or nothing of value. Here again is shown the great importance of securing an efficient machine to do the work asked of it.

But Prof. Blair, Assistant Professor of Horticulture, University of Illinois, tells me the most prolific source of loss comes in the way of depredations by insects and fungus diseases. Their coming often can not be prevented, but their ravages in 99 out of every 100 cases can be almost completely checked. The methods of warfare, of which spraying is the chief, have not been understood or properly valued. This is well illustrated by the fact, that had even 50 per cent of our fruit growers in this State sprayed their apple trees during the season of 1898, with Bordeaux mixture alone, thereby lessening in a great measure the damage done by the apple scab fungus, millions of dollars would have been saved. This statement is made without any hesitation, because it is proven by the fact that in several counties of the State apple orchards did bear and give to their owners handsome returns for the labor expended in spraying, while others in their immediate locality, not sprayed, produced nothing, and were prematurely defoliated by the apple scab fungus. The observations made by Prof. Blair, in these and many other orchards showed clearly that fruit did set, but dropped prematurely, as a result of the presence of this disease on the young apples and stems of the same, thus cutting off the food supply. The sprayed orchards were the ones which escaped such fate, and which gave the returns.

Though not so far reaching in their consequences as the wastes of fertility, yet enormous in themselves, are the losses to farm tools and machinery, due to bad handling and poor care. Recently I was obliged to drive 24 miles across the country, and in this distance counted 200 farm tools and machines housed in the corners of fences, in fields, and in barn yards, representing thousands of dollars. I am told by those who should know, that the average life of a binder in Illinois is between three and four years, and I do not wonder that it is so. Here were binders, mowers, road graders, and every kind of farm machine, used but a few days in the year, and left to the ravages of rust and decay the remainder of the time, thus reducing not only their durability but their efficiency as well. Properly cared for and properly used, the mower and binder on the average sized farm of 127 acres in Illinois, should do service for eight or ten years.

The importance of better care of machinery is apparent when we realize that this item alone costs the farmers of the State not less than \$10,000,000 annually.

Recent investigations made by the University of Illinois, extending over the entire State, shows that the cost of producing a bushel of corn in Illinois has a wide range of variation, the lowest being 13.3 cents and the highest 40.8 cents, a difference of over 200 per cent on the lowest cost as a basis. A similar investigation with oats showed that the lowest cost per bushel was 11.9 cents, and the highest 58.2 cents, a difference of 380 per cent.

At the Experiment Station during the past year the cost per bushel of raising corn as represented by three different systems or methods of farming was 14 cents, 17.5 cents, and 47.6 cents, respectively, a difference between the lowest and the highest of 33 cents. The lowest cost was produced upon clover sod, the highest upon ground that had grown 23 consecutive crops of corn without manure. The average market value of an acre of the 1898 corn of Illinois at 30 cents per bushel, and 31 bushels per acre is \$9.30. The average cost of growing is not less than \$10.00, leaving a total loss to the State of \$4,860,000, not taking into consideration the loss of fertility. You will all concede that with the proper rotation, good seed of the best varieties, and the right kind of cultivation, the yield can be raised to 50 bushels per acre, changing the nearly \$5,000,000 of loss into a profit of over \$34,700,000. Granting that to produce the 50 bushels the cost has been increased to \$12.00, there is still a profit of \$21,000,000. If an average of 60 and 70 bushels of corn per acre can be produced, as many of our best farmers are doing, and the average of the State now is but 31 bushels, it is certain that some one is doing some pretty poor farming. If the best varieties of corn were grown in the different sections of the State the yield would be increased not less than 10 per cent, making a total gain of 21,000,000 bushels annually. The variety tests at the Station during the past ten years, with 26 of the best varieties grown in the State, show a variation between the lowest and the highest yields of 75 per cent, due wholly to the differences in breed or variety.

The plant is a machine for manufacturing inorganic materials of the air and soil into organized forms suited to the uses of animals. The experiment above referred to shows that some varieties are more efficient machines than others, manufacturing a better and larger product at practically the same cost. If the lowest variety gives a profit, certainly the variety with 75 per cent greater efficiency, must give enormous returns, but on the other hand if the better variety is produced at a small profit, what a tremendous loss there must be with the poorer variety. Large losses to the crops following a wet season like the past are often caused by planting poor seed. There is no occasion for such losses since the seed can be tested at practically no expense. The tests just completed at the University show that a little over ten ears out of every one hundred of our seed corn are unfit for planting, because of low vitality due to the wet fall.

The wide ranges of yields with corn, due to good and bad methods of cultivation, good and bad seeds and varieties can be shown to be nearly as great with wheat and oats, and even greater in the case of potatoes.

But there are other serious losses in connection with the corn crop. During the past season the damage from the chinch bug, according to the most conservative estimates exceeded 20,000,000 bushels. Every farmer ought to know that at a cost of less than 20 cents per acre, including labor, and cost of material this loss can be entirely prevented by the use of coal tar.

The practice of selling the corn from the farm and burning the stalks, while it is becoming less every year, is altogether too common in large sections of the State. While it is impossible to make a definite estimate in dollars, of the tremendous losses from this source, yet the practical effect of such a system when continued for a number of years is well illustrated by an experiment at the University. The yield of corn the past season upon a piece of ground where corn has been grown continuously for 23 years and the stalks removed was 21.4 bushels per acre, while on the same kind of land under good farm management the yield was 85 bushels. Selling corn and

oats from the farm means little or no stock and consequently no clover. Even the fertile soils of Illinois can not long endure such tremendous losses of plant food. The question is not whether the farmer can afford to feed steers, hogs, and cows, but whether he can longer afford not to do it. Investigation shows that it is a fact that the dairy farmers and feeders produce larger yields of corn than the grain farmer who makes that his business. About 40 per cent of the feeding value of a crop of corn is in the stalks, and yet in many cases this is not only an entire loss, but the farmer is at considerable expense to rake and burn them, thus destroying in addition, valuable plant food. The crops of the farm as far as possible should be sold in the finished products of meat, butter and wool, thus retaining the larger part of the fertility upon the farm. A ton of butter representing the product of eight good cows contains about two pounds of nitrogen and one pound each of potash and phosphorus, worth less than 35 cents, while the same elements removed by a 40 bushel corn crop would cost, if bought in the market as commercial fertilizers, more than \$6.00. More than this, land constantly under cultivation, as is generally the case with grain farming, is subject to considerable losses of fertility carried away in the drainage water and by surface washing.

The question of fertility is a fundamental one, and of much more importance than is commonly supposed. The eastern states are already compelled to expend millions of dollars annually for plant food, and unless there is a radical change from the wasteful practices in Illinois, the day of commercial fertilizers is nearer at hand than we think. The fertility in the soil is the capital stock of the farmer, when that is gone, his business is gone, except as he resorts to the use of fertilizers which are necessarily expensive. Nature of her own accord will not restore the lost fertility of the land. Other things being equal the success of a farmer is measured by the fertility of his farm. Though the amount of plant food in the soil is relatively very small (not more than 4 pounds to the ton of earth ordinarily) yet there is sufficient, if properly used, to last for hundreds of years. When we realize that all prosperity is dependent upon the plant food in the soil, and that without it, there could be no other industries, no cities, in fact, no life, and that rich as our Illinois soils are by nature, they can be practically exhausted in a few years at the hands of man, I say when we realize these things I feel like pleading with the farmer to stop these neediness, yet tremendous losses of fertility so apparent everywhere. We do not want less corn, but we must have more clover, more stock and better rotations. To conserve the fertility of the farm is the first and most important element of success in farming. You will never make the mistake but once. When the fertility is *gone*, it is *gone*. Exhausted land means harder work and smaller profits for our children and our children's children. Clover and stock or commercial fertilizers, which shall it be? If it is not the one it must be the other.

The limitations of time prevent an extended discussion of the losses in the stock business. I will only say that these losses are often very great and too frequently the crop that was grown at a profit is fed at a loss. It requires greater skill to feed and raise an animal than it does to feed and raise the crop upon which he is fed.

Prof. Hecker estimates that the losses from bad management and feeding in Minnesota are not less than \$14,000,000 annually, and that the losses from inefficient animals is \$17,000,000. A poor machine can never give good results. Ten thousand Babcock tests placed in the dairy herds of Illinois would result in a saving of millions of dollars in ten years.

In conclusion, I will say that this presentation may seem to you like a blue picture, but it is not. It simply shows that there are tremendous possibilities in agriculture, and that the man who studies his business and understands it, and saves the needless losses upon the farm, will be rewarded with success.

Mr. Moore: Are there any questions to ask Prof. Holden?

Delegate: I should like to make an inquiry. There is a good deal of feeling about the chinch bug. I should like to know if you

can give me the cause of this: a piece seeded down to oats and clover, the chinch bugs go half way. I saw a place in Wisconsin where they had destroyed one-half and the other half hadn't been injured. This year the man on my farm came complaining of the chinch bugs and that they were eating his oats all up. Beyond the oats it was seeded down to clover. They didn't seem to cross the line. I have heard it said that there is too much moisture in clover and it kills them. My theory is that they were after the moisture.

Mr. Holden: As I understand it, here is an oat field, one-half oats and the other half clover: I can give you a list of at least ten farmers who have had the same experience in this part of the State. The chinch bugs do not like to go into the clover because they do not like the cold and wet; they like the dry and warm. I heard one man say he could not afford to sow clover on his farm; now I say he could not afford not to sow clover.

Delegate: You spoke of the chinch bugs keeping away from the tar line. My experience is that so long as the bug has no wings the tar line is successful.

Mr. Holden: If you have ever had any experience with raising potatoes, you know the little hard shell bugs that come at first; pretty soon they get wings and fly away. It is the same with the chinch bugs; their life is practically ended after they fly away.

Delegate: In Madison County the tar line has done good, but after the corn gets the tassel the bugs get wings and the wind comes and blows the corn down in thin places and we find very little good in the corn at those places.

Mr. Holden: There may be some damage at those times.

Delegate: Can you give me the manural value of a ton of dry corn stalks in and after they have stood in the field.

Mr. Holden: In a ton of the whole corn crop it would be about eighteen pounds of nitrogen, worth about 12 cents a pound, eighty pounds of nitrogen in a forty bushel crop, and about eighty pounds of potash and about twenty of phosphorus in the stalk.

Delegate: We lose the value of those materials by plowing the stalks under.

Mr. Holden: Is that a question?

Delegate: Yes, sir; my experience has been that the stalks remain in the ground for years after they are plowed under.

Mr. Holden: Yes, sir. It may take years and may do more damage than good; if you have a dry season on your hands it wants to be fed and go into the silo.

THURSDAY, FEBRUARY 23, 1899.

AFTERNOON SESSION.

Previous to taking up the regular program, Mr. Gale, Chairman of the Committee on Resolutions, offered the following resolutions:

WHEREAS, There is now before the legislature a bill, the object of which is to encourage the introduction of the sugar industry into Illinois; and

WHEREAS, The importance of the industry to all citizens and especially to the farmers and laborers of the State can not be overestimated; therefore

Resolved, That this Institute request the Legislature of Illinois to enact such laws as will do most to accomplish this result.

Mr. Moore: You have heard the resolution; what will you do with it?

Mr. Craig: I rather dislike to disagree with my friend Gale, but I would move that we lay this resolution on the table.

Mr. Moore: Are there any other speakers?

Mr. Gale: We would like to discuss the resolution itself.

Mr. Gale: It has seemed to the members of the State Beet Growers' Association that the larger portion of the opposition of the people against this resolution comes from their lack of knowledge, and I have been requested by a number of the members of the Growers' Association to present for your consideration some of the reasons why it has seemed to us that the Farmers' Institute should endorse this resolution which will be asked for. I shall not attempt to give all the reasons why it should pass, for there are others here more able to do that. I regret the manner in which I must present to your consideration what I have to say, but until yesterday I did not know that I was to speak:

There is now before the Legislature of Illinois a bill proposing to pay a bounty of one cent a pound on all sugar manufactured in Illinois from beets grown in Illinois during the next five years. The object of the bill is to encourage the introduction into Illinois of a new industry, but one that experiments made in growing beets and the success of similar factories in other states, under conditions less favorable than exist in Illinois, assure us will succeed. And an industry, if successful, which will furnish employment to many laborers, cause large investments of capital and cheapen the price of sugar to all citizens of the State.

Will it pay us, as farmers and citizens of Illinois, to advocate such legislation? Illinois is, and from its location and soil, must always be an agricultural state. Upon the prosperity of its agriculturists depends the prosperity of the State. Never was this more true than now, for the farm laborer of today, is tomorrow the laborer of the railroad, of the shop, or factory—wherever he can find employment; and any improvement in the wages or conditions of the farm labor helps every laborer in every other occupation as much. Ten kinds of factories find their homes in the country districts of Illinois.

A beet sugar factory can only exist in such a district. It must have a supply of beets grown in its immediate neighborhood. To secure this, it must pay for the land and the labor employed a larger compensation than ordinary farming pays. It can not surround itself with such a class of laborers that

whenever the factory closes its doors they are thrown out of the only employment they know and soon move away or become a burden upon the community.

Raising beets enables the grower—who may be a farmer—or a citizen of the nearby town owning or renting a piece of land of any size from a town lot to a farm—to find a certain market for the labor of himself and such members of his family as care to be employed at fair wages. It is such an occupation as teaches better farming, more thorough cultivation of the land, creates habits of industry in the youth, makes laborers owners of their homes, and small farmers prosperous, conditions that add most to the wealth and prosperity of the country.

Of the value of such an industry in Illinois, that we need and want it, if it can be secured at not too great a cost, there can be no question. Illinois uses about seventy pounds of sugar for each inhabitant—every one uses it—and to cheapen its price benefits every individual, and to about the same amount. Illinois pays for about three hundred million pounds of sugar, costing her retail merchants about fifteen million dollars annually. Most of this is paid for beet sugar imported from Europe—none of it to laborers or citizens of Illinois. If this sugar were manufactured here, nearly all of this money would be paid for labor and be again expended in the towns where the laborers live becoming by so much an addition to, instead of a drain upon our wealth. For the cost of sugar is nearly all labor—about forty-five per cent for beets, fifteen per cent for coal, limestone and transportation, fifteen per cent for labor of factory employés, and the balance factory supplies, interest and profit.

There are many who believe that with the industry once established, no part of the world can supply Illinois with sugar as cheaply as her own citizens can raise and manufacture it. That they will be no more kept from producing sugar by the competition of the cheaper labor of Europe, or the cane sugar producing countries, than they are kept from raising corn and wheat by the cheaper land of the west, or labor of India and Russia. The farmer must meet competition in every crop he raises. No trust can create a monopoly for him, and it is easier to compete in supplying a product for which he has always a home demand, than when what he raises must find a foreign market. If those who so believe are wrong, and those who say sugar can not profitably be produced in Illinois are right, then to offer the bounty, as proposed, will cost the State nothing, unless the first factories erected prove profitable, other factories will not be built, and unless factories are built, and a successful industry established, Illinois will have no bounty to pay. Perhaps so. We believe the industry will be so profitable to both, and the advantages Illinois offers for the business are so great that it will come to us in time. If we did not—if we believed the industry would always need a bounty, we would not want it at all. But because we have such faith in the business we want it now, and we believe it cheaper to offer a bounty and secure its advantages now than to wait for it to come to us. Without a bounty, not only will the business be introduced much less rapidly, but where factories are erected it will be at a much greater expense to the community, and with a bounty offered in other States and none in Illinois, manufacturers seeking a location will look to other states.

Every one knows that a man who first attempts to start a new enterprise does so at a great disadvantage. Usually by waiting until others have made the business a success and learned its requirements, the manufacturer saves more money than his factory could make in the same time. A bounty offered for a short time insures a manufacturer who starts at once against this loss, and places him on equal terms with the man who waits to profit by his experience. A bounty will induce more factories to start, and while one factory might for local reasons, or incompetent management prove a failure, or discourage others, several factories would find the needed way to insure success.

Is the establishment of a successful sugar factory the only kind that will secure a bounty worth to the State or neighborhood where located what it would cost in bounty? Establish a factory—the smallest considered profitable—it would manufacture seven million pounds of sugar and cost the State in bounty seventy thousand a year. What does the State get for its money? The cost of the factory alone is about \$350,000. Add to that the cost of needed

railroad facilities, the mines and quarries it will support, the home of its employes, and the business they bring—practically the same if you furnish employment to citizens already here, as if you brought new ones, for it is entirely a new industry decreasing no present employment, and you have added toward \$1,000,000 to the taxable property of the State, an addition like the other benefits of the industry, not ending with the time in which you pay bounty, but lasting. The factory will pay to the labor of its community directly \$250,000 to \$300,000 and save to the community an expenditure of \$350,000 that it now pays annually to foreign labor, nearly all of which is paid to countries that buy as little of us as they can and place all possible restrictions upon our trade, especially discriminating against the products of agriculture. If at the end of five years the State has secured the raising within its borders of all the sugar it consumes, it must necessarily reduce its cost. A reduction in the price of one-fourth of a cent a pound for two years thereafter would more than repay the State all bounties paid during the five years of growth of the business.

With sugar imported and refined in the large refineries as now, a trust or combination among refiners, is able, as you have so often seen, to control the amount placed upon the market and raise the price to any extent desired. Let Illinois raise and manufacture her own sugar. The many small factories can not be controlled as the few large refineries now are, and you have put it out of the power of a "Sugar Trust" to tax, as now, every individual in the State for it—to corrupt our legislators and dictate to our merchants how they shall conduct their business.

Every argument in favor of a tariff for protection applies with greater force in favor of this bounty. Members of the Republican party should need no argument to convince them of its desirability. Let those who do not believe in the policy of protection to foster home industries consider it as a business proposition. Can you afford, remembering that unless a successful industry is established, it cost nothing to miss or delay securing an industry of such permanent value at so small a cost?

Mr. Horton: What per cent of this bounty would you advise ought to go to the producer?

Mr. Gale: One-half to the producer and one-half to the manufacturer.

Mr. Horton: If the beet growers produce a certain per cent then one-half goes to them, but if they do not produce so high a rate then they do not get so much.

Mr. Gale: The proposition is to pay the farmers \$1.00 a ton additional; the manufacturers must pay \$5.00 a ton for their beets in order to secure a bounty.

Mr. Horton: Wouldn't it have a tendency to have the farmers raise a lower grade than they would otherwise, the way the bill rests?

Mr. Gale: The way it is now, it is to make a contract with the farmers taking their beets at so much for them, notwithstanding the amount of sugar contained in them. After the bill is introduced, and that is the disadvantage, they must tell the farmers that they will take whatever they raise for this year.

Mr. Greig: I guess there is no question but that we can raise sugar beets in Illinois; we can raise enough tons to the acre, and it has enough sugar in it and all that. In California, Michigan and New Jersey, the manufacturer gets all the way from 20 to 30 per cent on his money invested. Will any farmer here say he needs any more? I think not. Another thing, we know we can raise the beets if the beets will be raised, but to furnish the manufacturer the crude

product to work with, he does not need a bounty, and now we can raise the beets with sufficient sugar. A friend here raised sixty tons to the acre, I think, test twelve to ten. The manufacturer does not need anything from the State as a bounty if he is getting 20 to 30 per cent on his capital invested. And Europe pays a bounty to the producer, making the home sugar dearer. You can buy German sugar cheaper in Great Britain than you can British sugar. In the near future Porto Rico and Cuba will be on the way to the question. Can we in Illinois afford to give a bounty to produce sugar, and compete with cheap labor in Cuba? These ideas are simply because one state will grant a bounty, such as Michigan and Indiana, and another idea is because they are Republicans on account of the principles of the tariff. And these infant industries that we all have heard of in 1870, wanted a bounty, and they are infants to-day. The granting of a bounty leads to a craving of an everlasting bounty, and therefore I object to it.

Mr. Moore: If Wisconsin gave a bounty, and you were going to establish a manufacture, and put in \$3,000, and Illinois gave none, where would you put your manufacture?

Mr. Greig: In Wisconsin.

Mr. Westlake: I am not going to object to the tariff or the bounty upon the sugar, but it is the principle of the thing coming into the Farmers' Institute. We are made and put in the position here of a lobby to lobby this thing through the Legislature. It is a rider that will eventually ride down the Farmers' Institute of the State of Illinois. Another thing. I think it is wrong, too, to offer the bounty. To illustrate: Where I live they are establishing a canning factory. They have taken stock among the farmers. It would be just as much sense in my judgment to ask the State to put a bounty on beans, and peas, and tomatoes, and such things, as upon sugar.

Mr. Hostetter: I would like to say a word in answer to the last gentleman. The law that enacted the State Institute stated that the object was to promote the agricultural interests of Illinois. Now, the question is, will growing beets do this? The gentleman said they would be making sugar in Cuba. Now which will promote the agricultural interests of Illinois the most, to encourage the manufacture of sugar in Cuba, and pay the freight from there, or to do something to manufacture sugar in Illinois? I think it is perfectly within the province of this Institute, if in our opinion we can develop the industry in Illinois and put in some of the acres that are now in corn, to the raising of beets for sugar, and give employment to many now unemployed. I am in favor of this Institute considering this question and discussing it thoroughly and voting on it intelligently.

Mr. Holden: I ought to say the experiment has been made to see whether Illinois could produce its own sugar or not, and of course there is no question as to what the results show. Illinois can produce its own sugar, and instead of sending \$15,000,000 annually to foreign countries, it can just as well pay it to our own State. Now, in regard to the waste from the sugar; the factories own it and pay for it. They do not sell it for anything. You should go to Grand

Island and see the great stock yards. This waste is valuable for feeding. Three hundred thousand head of sheep were fed by these companies there last year on this waste. Now, in regard to this bounty question. I should not say a word if I thought it a political question. Now, when I have come to think about it, I advise each one to think carefully about it, if we want this industry in our State, both the profits of the factory and the profits of the farmer, too. Now, one gentleman said there was 20 or 30 per cent goes to the factory, but every single factory that has started and made its way, the first three years has run at a loss, because they could not get the raw material. They had to teach the farmers how to grow the beets, and it was only after these three years the thing became practical. A man came to me from Belgium the other day. Said he, "First, I want to know if Illinois can produce beets," and I replied that the experiment station stands ready to say yes; and said he, "I want to know if Illinois is going to offer a bounty, because I represent \$12,000,000 in Belgium, and they will come over here and investigate the opportunities, and I am going back home and I am going to get this money together and am coming back, and if Illinois will not do that much, then I am going to some other state." The great profits in this thing are in the near future if we can keep our capital at home and pay it out to our farmers. It takes from one-half to two-fifths of the corn crop of Illinois to pay for the sugar. We are going to vote on a question that affects the pockets of each one of us. We spend a few thousand dollars right now, but in a few years it will have the result of turning millions back into the State.

Mr. William Curtis: It seems to me that this is just a question of whether we will have a sugar beet industry in our State or not. Do you want factories? Surely we do. If we will give these factories this bounty we will have them, and if we do not, our money will go to Wisconsin, Nebraska and New York, and other states, to be invested. It seems to me the question is right for the farmers to take up and discuss here. Do we want to encourage home industries? Do we want to furnish employment for our own people? Do we want to keep our money at home, or do we want to send it away? That is the question that confronts us this afternoon. I know that it takes a great deal of money to start any new thing. If we want these factories here we should encourage them and work for their interests. If we do not want them, let us do the other thing.

C. E. Phelps: The question is discussed now simply on the basis of money. It is true that labor is entitled to its just reward, if it can get it. We seem to ignore the fact that the United States has a waste area of territory that is capable of raising more to the acre,—the State of Texas could supply the world if we would only put it in sugar,—it can raise corn also if you give it a chance. The question arises, shall we go down in our pockets and tax the State when large capital goes untaxed? We are already loaded down by taxation. We pay immense taxation—we, the producers. The question is, shall we get so many dollars worth of capital somewhere to start an industry that we do not know ever will become a success? We do know that the sugar crops of the Southern states will always be a

success. Will it benefit the farmer of Illinois? Those we call the general farmers, those not connected in any way or near these factories? Will it benefit us in Bureau County, who do not know whether we can raise sugar beets or not, and we do not know that you will raise them if you have a chance? It costs money to take care of a beet crop. It takes lots of labor. How many farmers would go into that kind of business?

"The industry will support itself if we give it an opportunity." These questions always have two sides to them. We are here not to tax one another, not to rob one another, we are here to benefit the whole country, not just a few. Those factories cannot be located in Bureau county, and if they were, would it be fair to tax the whole State of Illinois to benefit Bureau county? These questions come up and they are mighty questions, and therefore we need to consider these things without prejudice, and without their saying, "We will leave you if you do not come to us."

Mr. Holden: I have given this question a great deal of attention. The gentleman says there are other countries that can produce more sugar than Illinois. That is not true. We can produce more pounds of sugar to the acre than any other State in the United States. About taxing people, let me say this: In the first place if you go to Grand Island and inquire at the county seat as to the condition of the farmers in those counties around there, you will find that there are fewer mortgages on farms than anywhere else. The pressure on the other crops is relieved by this crop, and that is a benefit. Another thing, all these people that are growing corn and hay in Nebraska finds that it increases the net earnings of these crops, because Armour and Swift ship in animals to be fed there. If \$15,000,000 comes into this State, and only a few thousand are paid out, I do not see how we are going to tax the people.

Mr. Greig: Mr. Holden teaches us that we can raise more sugar producing beets in Illinois than anywhere else in the country. Then way on earth do they want a bounty?

Mr. Westlake: Now in connection with the tax. I see no way whereby we are going to put this tax back into the man's pocket who puts it into the bounty fund.

Mr. Gale: Surely you pay it back if in any manner you reduce the price of his sugar, and the poor man's family, who is the man who pays but little of this tax, is the man who is benefited.

Mr. Black: Thirty years ago two little towns wanted a railroad; their opportunities were about equal. They asked \$15,000 to each town to get it. One got it and the other didn't. The president told me he would have given a little advantage to the town that didn't give the \$15,000. If a small amount can bring us sugar factories in the State of Illinois we will be working against our interests if we do not give it.

Mr. Brumback: It has been the history of this western country that whenever a county has not taken advantage of the opportunities as they came they failed to ever get them. Now here is an opportunity that this country is taking hold of, and if Illinois fails to do the same thing, as it furnishes as good opportunities as other states,

it will lose its standing as it has been doing in some other respects. It must keep up with the times, and to my mind it does not cost much to do this. We do not have to pay this tax unless factories are established within our borders. They must produce the sugar, and when we have that the tendency is to reduce the price. Where the factories are located they enhance the value of lands and brings in other capital and other property subject to taxation. If this thing should come, I do not believe there is one man in this house that would suffer by paying this bounty tax for the purpose of increasing other products and making the standing of the state better, increasing the amount of property for taxation, etc. Now this is not a party question, it is a business question, and to those that are opposed to a high protective tariff can look at it in that way.

Mr. Foster: A gentleman made the remark that by paying a bounty and bringing those factories here, it would lessen the price of sugar to the consumer. How are you going to manage to keep those factories out of the hands of the trusts, whether they are located with a bounty or not?

Mr. Gale: It is very much easier to keep a great many factories out of trusts than a few refineries. The factory itself must treat its patrons right. Its interests are identical with the interests of the farmer. If they do not treat them right they do not get beets, and they have no profit. But this bounty expires only in about the time it will enable farmers to get a start. You are merely putting them on an equal standing with the factories after they have received the benefit of their experience.

Mr. Holden: I want the industry in Illinois for I know it is a good thing for the State. I have investigated the same carefully in regard to raising beets. I visited a capitalist in Chicago the other day. Said he: "I have ten millions of dollars in Germany that we are willing to put here providing we can get the raw material." If you can give the farmers something to tide them over while they are learning to grow beets, the first three years the farmers are not going to make so much money on account of the the mistakes they will make. It costs us \$35.90 to grow a ton of beets, and the yield was twenty-one to the acre, but right at the side of us were men who tried to grow beets and didn't grow enough to pay expenses. There was a man who wanted to contract for one hundred acres and send it to Grand Island. I advised him to grow one, and he said to me, "Mr. Holden I am one of the most thankful men you ever saw; I put in only three acres of beets and I haven't got them harvested yet." But after they have learned the ins and outs there is plenty of money for any farmer.

Mr. Snow: I am inclined to think, Mr. President, that the question has been pretty thoroughly discussed.

Mr. Moore: The first question was as to laying the resolution on the table. Are you ready for the question? All in favor of laying this bounty question on the table say "Aye."

Mr. Moore: The "Noes" have it.

Those in favor of the bounty express it by saying "Aye." Carried unanimously.

THURSDAY AFTERNOON.

Ladies' Quartet: Mrs. Wagner, Mrs. Bailey, Misses Grace Best and Blanche Lytle, Princeton.

The Chairman: I am glad to announce that we have with us this afternoon Mr. P. S. Eustis, General Passenger Agent of the C., B. & Q. Railroad, who will address us on the subject, "The Railroad and the Farmer."

Mr. Eustis delivered the following address.

THE RAILROAD AND THE FARMER.

MR. PRESIDENT, LADIES AND GENTLEMEN: Scientists tell us that no man, no class of society, no industry is independent of all the rest; all are parts of one great whole. Some one has likened the products of the land to the blood of the human body—the very life of it, and the railroad to the arteries through which this life flows. I think this a very good simile, and it illustrates the very close relations between these industries.

The very selection of this subject for discussion in itself carries the idea that the question is not understood, and we hear and read much that indicates the existence of strife between these great interests. At times one would think the railroads and the farmers are in constant strife. True, much of this feeling has been engendered with a purpose in view; by men with an axe to grind, and that nowadays we hear less of such stuff and nonsense than formerly, although some feeling still exists.

I turned to my clerk a day or two ago and said: "Look over some of the recent utterances of men, not necessarily of high positions, but of men who claim to represent public opinion. Bring me anything that is an attack upon the railroad, and if it comes from a farmer so much the better." He brought me an article three columns long from which I have skipped two or three things. That man says: "It would seem, looking at this question from above, that there should be no friction between two classes so mutually dependent upon each other as these we are considering; but when we come down from theory to the domain of actual fact we find that instead of peace there has been war; that the great corporations which control the railroads have been managed as if all mankind were their slaves, is true in too many cases to be a pleasant thought to any man who loves humanity.

"That selfishness and greed have dominated their conduct in numberless cases even the most biased friend will allow. Of all the low craft and cunning, the utter disregard of laws of honor and honesty, you have only to read the doings of some of the men whose names stand high upon stock board and financial circles. It has become necessary to coin new words to name some of their tricks. The English dictionary did not contain the proper terms of the deeds they did, and 'watered stock' and like terms came into being.

"We have seen railroads bonded for every dollar they cost, and then stock issued and sold for much more, and sometimes a bonus obtained from each town and county through which it ran, these last two items going to swell the millions in hands of an unscrupulous syndicate lying back of the whole transaction. We smart too keenly from these things to close our eyes to actual facts. We know it to be a fact that very few roads indeed are stocked and bonded at their actual cost. We know the men set to manage these roads are set to so adjust charges as to collect enough to pay interest on bonds and stock that represent no investment save in paper and in printing of the certificates."

Now this man was not an extremist, his whole speech was a moderate one, as such things go. He paid some railroad men a great compliment. I am not.

dealing with that side of the question, but he meant to be fair. He further says: "No honest man begrudges the railroad the very last cent that rightfully belongs to it; we are all too much indebted to its service to wish to mar its interest or efficiency in the least degree, but the most beneficent institution may be perverted from its true purpose and become a means of enslaving a free people."

I thought that was a very fair article to pick up as a basis for my statement, that even the most reasonable misinformed man—and most men are misinformed—is apt to say things the weight of which he does not realize. That man spoke of bad railroads and bad railroad men. There are plenty of them, but there are no worse railroad men than there are farmers. Some of the meanest men I ever met were farmers. When the gentleman whom I have quoted made that speech he spoke of railroad men—and I presume he referred to managers—and picked out an isolated case here and there and held them up before his hearers as representatives of the railroads.

Now, there is only one best railroad and that is the Burlington. There are a lot of others, too, very good, and the best in the world for management, that are honestly constructed and well run today, and the railroad men this speaker referred to are no more representative of the railroad than are the mean and unscrupulous farmers I know representative of the agriculturist.

Railroads are properties in which large capital is invested and most of them are, therefore, managed by men who must carefully study every question affecting their business. They lose their jobs if they do not. For this reason you never hear a representative railroad man say that his interests and those of the farmer are antagonistic. He never looks upon the farmer as a natural enemy who should be injured, or even controlled, to a dangerous degree by legislation. On the contrary, he will tell you that the prosperity of his railroad is dependent upon the prosperity of the farmers. That the railroads of the west are especially dependent upon the farmers' ability to produce and use, and that when the farmers give up their farms and move away the railroads will have to be abandoned.

No, gentlemen, the false views we speak of come from the farmer or his representative, who claims that the railroad is, in a sense, his oppressor, and that the two interests are so opposed naturally that the railroad will, in the end, ruin the farmer if not controlled or prevented by legislation. When the farmer holds such unsound views it is solely due to lack of knowledge of plain facts easily obtainable by careful study of public documents. Many of the farmer's remarks from day to day about the railroad—and I say this with all respect—are based not upon what he knows, but upon what he claims to be facts he has read, and presented by authorized compilers, but in reality things he does not know at all. We commonly read and hear as fact what we subsequently learn is chiefly, if not all, fiction, and man frequently misunderstands the truth if he hears it. It is, therefore, not surprising that what the farmer knows about railroad stocks, bonds, and the like, is untrue or truth misunderstood. Of course, plenty of intelligent farmers do know about it, for they have studied it, but the mass of men who talk upon such important questions every day upon our streets know nothing about it, but their remarks have influence with the public, just as everyone in the world has an influence, and it is to those men especially that I address myself.

Now, in theory and in fact the railroad and the farmer have no antagonistic interests. In the long run the one prospers only as the other does.

Look back, you gray haired men, to the forties and fifties, to the days when the farmer hauled everything to market. Did not the land in those days produce as fine crops as now? Didn't your hogs and cattle increase as they do now? But of what real value were these products to exchange for the necessities and luxuries for your family? I refer to the necessities and luxuries manufactured elsewhere in the world. Tell the present generation how that your only markets were the towns on the great lakes and rivers. Tell them of the expense required to market each load of your products, and of the small returns with which to provide luxuries for your families. Tell them that in those days God sent babies in plenty, just as He does now, but for lack of transportation it was well nigh impossible to clothe them so scant

were the manufactured luxuries of life. Tell them that many a wife wrote back to the old home telling of the acres upon acres of fine oats they had raised and yet not a frock to wear. Tell the boys and girls of today how far it was to school and church; tell them, in fact, that they know nothing of the privations of the farmer of that day, when it was a hundred miles to market.

The farmer of Illinois is today living within five miles of a railroad, which furnishes transportation for his products to all markets of the world, and in exchange brings back to his very door the luxuries of life and food and entertainment for his family. It takes and brings his mail daily, keeps him in touch with the financial exchanges of the world and carries him to any part of the United States and back between first and second corn ploughing; and all this the United States railroad does for less charge than any railroad in the world.

The building of this iron highway has, in fact, so changed and improved the condition of the western agriculturist that it would be absurd to suppose the farmer could get along without it. He may well wonder how they managed in earlier days.

Now, if the farmer must have his railroad, I take it he wants the best. He is so dependent upon transportation for himself and his freight, and competes to such an extent with the rest of the world that he should seek to obtain only the best of modern transportation facilities, as upon them rests, in a great measure, his ability to compete with any other section of the other world. The cost of transportation is, of course, important to him, but good transportation is what he most needs. This can only be furnished by railroad companies doing a business that pays, and one would therefore think that the farmer's natural tendency would be to protect the railroad in his section and any attack upon it, any legislation which may possibly injure it, should arouse his opposition at once.

The thoughtful man, of course, has no difficulty in accepting the logic of this position. He admits that it is to his interest to have good transportation and that this can only be furnished by the companies making a reasonable profit upon the capital invested, but from that on, there is much controversy. He says the bonds and capital stock of your railroad upon which you claim the right to earn a reasonable income, do not represent the cost of the road. In fact they do not represent the present value. Millions of these securities are nothing but pure water. Either statement might be disposed of at once. Is it not so? It has been repeatedly stated by competent authority that the present capital stock and the bonded debt of the railroad does not exceed their cost or present value, and there are tons upon tons of public documents within easy excess to all inquiring, which will fully support this statement.

For a moment I will discuss it. If I understand what is meant by the term "watered stock," as commonly used, it is stock issued as a bonus, or without consideration. For instance: First.—A railroad costs in cash a million dollars to build; this road is mortgaged for a million dollars, and in addition, a bonus of a million dollars in stock is issued and this is pure water. Now I will admit, for the purpose of argument, that that kind of stock is watered. How much is there of it? On one occasion I told the chairman of the railroad committee in one of our western states, that the next afternoon I was going to speak before the legislature upon that subject, in connection with an argument I was to make in opposition to a bill that was up. I said, "I am going to call upon you, as the chief advocate of the idea that "watered stock" prevails, and I shall ask you to give me a list of the railroads running in or through your state, the bonded and stock debt of each, and your estimate of the amount of "water" that exists. His estimate was merely a guess, but he claimed to be a good guesser, and yet I found the records of his state showed that the courts had marked off the books and cancelled some \$10,000,000.00 more stock and bonds than he claimed was "water"—so even less than the net value was left, according to his own figuring; and so it is with all such statements. There have been compiled and published from time to time, schedules of the original stock and bonded debt of the railroads, and the amounts since cancelled by foreclosure proceedings and re-organizations, and the total reduction of debt in such manner far exceeds any fair estimate

of the "watered stock" so commonly spoken of. Second.—During short periods of extraordinary prosperity, railroads have earned extraordinary profits and have presented it to the stockholders in extraordinary dividends. Some say, "This is pure water." I suppose the farmer, whose extraordinary profits in one year were twenty per cent on the capital invested in his farm, claims the right to use his profits any way he sees fit—to give it away or take it out of his business. Suppose, however, that instead of using the profit, he re-invests it in his business, to put up new buildings or to buy that piece of pasture land to fill out the corner, would he not claim thereafter that the capital invested in his farm was increased by just the amount of money invested, and would he not say, if he came to sell that farm, that it was worth five thousand dollars last year, but he put a thousand in it this year, and there are the buildings or land to speak for it? The selling price is six thousand dollars, and upon that basis will he rent it and claim a reasonable right to a profit and income. This is the way the railroads did: The railroads in those days, when they issued stock dividends, found that they had extraordinary profits. This profit could have been paid out to the then stockholders and the additional stock for needed improvements could have been sold upon the public market and the same money returned to the treasury. Instead of that, the money representing the profit was invested in new property and improvements, and the stock to represent it was given to the stockholders. That is what they call "watered stock." There are few farms in Illinois that have buildings on them but that the stock or present selling and renting value is watered in that way. Your property increases by the amount of your improvements, your materials, your labor added to it.

And right here, in parenthesis, I wish to remind the farmer that he is the last man in the world to talk about watered stock. I don't mean the old joke about the stock he takes to water just before he puts it on the scales. There is no one whose capital stock contains so much water as the man whose money is in real estate.

It was said by the Board of Railroad Commissioners in Illinois, in their report for 1895, page 6: "The average market value of Illinois lands before the construction of the railroad, did not exceed five dollars per acre. When the railroads were assured to be built, the lands at once advanced to fifteen dollars and twenty-five dollars per acre, without improvements. The destitution of actual means of transit in the vast areas not adjacent to the navigable rivers and lakes has been overcome by the railways, and it is safe to say that the value of the lands has been enhanced more than twenty-five dollars per acre, independent of the cost of the improvements put upon them by the farmer."

Just think of it! Over one-third of the value of your farm is "pure water," notwithstanding the cost, labor and improvements, and yet you who rent your farms claim a reasonable income and profit upon this value, watered stock included. Your position is a sensible one, which would apply to the railroad business just the same, if the watered stock existed, which it does not.

Of course I know there are many phases of this most important question. Some will say the railroads could now be built and equipped for much less money than they cost. Right here I can not resist the temptation to tell a little story. One of our officers was at one of the stations in Illinois, not long ago, and met a farmer, a prominent and respected citizen. He was about to ship some very fine cattle. Said the railroad man: "Those are very fine; two-year-olds, I guess? What do they cost to raise?" The other looked surprised and said, "Why, I don't know." "Well," said the railroad man, "that has been your business for a good many years?" "Yes, sir," said he, "but there are so many things to take into consideration. Now, I have been thirty years farming, and part of the expense of thirty years belongs to the last two years. I don't know what it would cost to raise them." "Well, you raise corn, don't you?" persisted the railroad man. "What did your corn cost to raise?" "I don't know; of course lots of men say they can tell what it costs to raise corn, but I don't believe anybody can." "Now frankly," said

the railroad man. "Don't you claim to know what it costs to build a railroad?" "Yes, I guess I do know." "Yet you never built one and never even saw one built; now, where did you get your information?"

Other men will say that if the schedule of charges for freight and passenger service were properly adjusted, they could be lowered and the railroad would make more money. You laughed at my last story and have given me courage to tell another. I was in Iowa a few years ago and stopped off on one of our branches to see how the corn looked. As I came out on the road I met a gentleman who, I thought, must own the farm nearby, so I apologized for the few ears of corn I had in my hand, and told him my name and purpose. I found him to be one who had written us often about how we should lower our rates to make money, and he at once took up the same subject. After awhile I found fault with the condition of his hogs, and told him how to feed them to get better results.

I said so much that he resented it and said it was seldom he met any one who claimed to know so much about raising hogs. He rode with me for two hours, and just before leaving, he said with a hearty laugh, "Eustis, I won't say another word about your rates; I have just caught on to that hog talk of yours."

In the very limited time permitted me on this occasion, it is obviously impossible to do more than lightly pass over the subject and touch a few of the principles. I think I have done that, and my mission shall have been accomplished if my remarks have aroused in you a desire to know more about the railroad. In the State House at Springfield there are tons of reports from your Railroad Commissioners and the Legislative Committees, for which you have spent hundreds and thousands of dollars. The reports are written by able men who have given careful study to the railroad question in Illinois. At Washington are to be found the reports of the Inter-State Commerce Commission and various Congressional Committees, presenting the best obtainable information upon this subject. If you take those reports and read them carefully, you will find by analyzing the figures presented that more than seventy per cent of the railroads of this country do not pay interest at all. That the average income received, taking the net receipts and dividing it among the stock and bonds of all, does not equal one and one-half per cent. If you called fifty per cent of the stock and bonds "water," then they are only getting three per cent income on the investment. Surely that is not extraordinary; and the more you read those reports the more you will be convinced that when any man undertakes to circumscribe the movements of the railroads in your state, he is liable to seriously injure an industry and interest that is as closely connected with you and your business—more so in fact—than anything else you can mention in this world, outside of your own family. There is no farmer so dependent upon anything as he is upon his transportation.

If the average farmer were to study these reports carefully, it would not surprise me, if two years hence he should appear before Congress and the Legislature, demanding the passage of laws intended to aid the railroads to earn more money, or at least he would demand the immediate repeal of every law which might have the contrary tendency.

The President: Are there any questions to ask Mr. Eustis?

Mr. Brumbaker: If Mr. Eustis will allow it I should be pleased to ask him if the railroads of today would do away with the pass system if we common people could not ride for a little lower rate?

Mr. Eustis: By that is meant if passes were abolished would there not be revenue enough to reduce the rate? I say no. And when I say that I speak of western railroads. Now please do not smile when I make this remark, I make it carefully. I know whereof I speak. The average amount of free transportation, other than for employees, on western railroads does not exceed eleven per cent of the passengers carried. Of that eighty per cent (that is eight per cent of all)

is transportation given in exchange for some specific service that would otherwise have to be paid for in money. It is no difference to us at all whether we give a ticket worth \$20.00 or pay \$20.00 in cash—would little rather pay with the ticket—so you have left about three per cent of all our transportation. If the passes were abolished wouldn't we have money enough to reduce the rates? I say no, because the railroads of today are so far from paying the expense of moving their passengers, that if they got the money for the three per cent, they still would not pay expenses. Western railroads carry passengers for less than its costs to move them. That is a fact.

Delegate: I would like to ask if rates on freight are the same for the same distances? It occurs to me that they are not. I have been living in the village of LaMoille for the last forty-six years, and we have shipped lots of stock from there. Now, at the present time we can not get the same rates. I understand that from our grain dealer we can not get the rates they do from other places, Wyandot, for instance, and lots of our grain goes there because our dealer can not afford to pay us what the Wyandot man does. In the month of September there were 20,000 bushels of corn that should have gone in the elevator at LaMoille, but they went to other stations.

If I want to go to Chicago passenger rates are low enough. Why is it I can go a good deal cheaper if I buy a ticket to Aurora? Now there are ways and means of getting to Chicago and back from Aurora for half the regular rate. There must be some accommodation to the Aurora people; there is no accommodation to me from here. Now there are times when I can expend \$20.00 and ride for two cents a mile. I should like to know how those things occur. There is no question but that these railroads have made this country, but who pays for the freight? The car goes by empty; it is charged up to the man that fills that car when it goes back.

Mr. Amos F. Moore: The other day I was riding in a car and was the only man out of twenty who paid my fare. The question revolved in my mind, who paid for the other men's fares? Wasn't it the man who bought the ticket? It looks to me as though there are three classes of people; the rich man, the tiller of the soil and the tramp who rides on the axles. The tiller of the soil rides in a palace car and so does the rich man, but Jones pays the freight. The legislators have their passes and the judges, from the lowest to the highest, have their passes. It is a disgrace to the United States. Where you find a case in Court against the railroad company you always find that the judge in that case carries a pass. It makes me shake in my boots for justice. I have a farm, and the railroad runs through my farm, and thus I get my experience from forty odd years. If one has a case against the railroad company, with its sixty-five million of dollars against your sixty-five cents, what can you do? I would like to have this gentleman tell us why all the judges are riding on passes.

Mr. Eustis: Gentlemen, I have been here since 12:28, this noon, (rather long, isn't it?) two hours and three-quarters. In comparison with the portion of the state through which our road runs, the people

that I have met here today are small in number—a mere handful. I have been asked for four passes since I got here. I have dodged every one so far, but I don't know how I will get through before I get out of town.

I don't believe there is a man in this room who will doubt for a moment that the average man who gets into office, from township supervisor up, and who then asks the railroad to give him a pass, will do other than put the railroad man in a very queer position. The railroad man does not want to give it to him. He has just given away so much if he does. What service that man will perform to repay us for the pass is very questionable. But what does he do if the railroad man refuses his pass? First, he gives himself away and puts himself in a queer position by asking for that pass. Now that he is refused he is a madder man than you can imagine.

Do any of you remember General Van Wyck? I had made a speech in a convention in Nebraska when General Van Wyck was the central figure of the situation. He was up for election as senator and was interested in the delegates of the convention. He made a great attack upon the railroads for giving passes to public officers. The public officer had no right to ask for a pass, it was robbery. I leaned over and said, loud enough for the reporters at the tables below to hear, to a prominent man who sat behind the general, "Ask Van Wyck why he asked me last week for a pass for his wife, a nurse and two friends to Chicago and back." The man asked him. Van Wyck looked and turned to me and looked as though he could eat me. I didn't say anything. I hadn't asked any questions, and I would not have prompted the gentleman had I not known that his political opponents were loaded and had forty odd passes the general had asked for, had the names, the numbers and the dates, for himself, his family and all his intimate friends. What do you suppose his answer was? He said: "O, you know, there are lots of old soldiers and they always forage in the enemy's camp during campaign."

Now, in answering the question about the freight, I am at a disadvantage. I only know that in a general way the charges are the same for like services like distances, approximately. You can not always be able to adjust the conditions in a State like Illinois with a network of railroads, and where you start from A to get to D, and sometimes have to go around through Z and you can not ask the rate from Z therefore; if you make the rate from Z different from the rate from A there is a comparison at once that is odious. Especially complicated does that become when you remember the different markets, like the different outlets at Chicago and Peoria and St. Louis. It is true at times that gentleman may pay more than the grain is worth, and you will see by referring to the facts that in 1896 we had a large corn crop in Nebraska. It was worth very little at that time when people were cribbing it. Farmers were short of cribs and they were short of money too. They had a wheat crop too. They wanted to market everything and they wanted to get all the money in, so they loaded their corn to market before there was any market and the

prices were very low. An extraordinary shipment of 3,000 cars of grain depressed the market at once. Mr. P. D. Armour sent men out all through the country; he erected corn cribs and paid the ruling prices, and at the least one-third of what he bought he paid from a cent to two and a half cents a bushel more than the corn was worth, if you took the Chicago prices and deducted the freight he paid, but when he got through with the whole deal he had made on an average of six cents a bushel on it.

Delegate: He is doing that today.

Mr. Eustis: Why don't you sell to him then?

Delegate: I am satisfied that unless those men lie, that Black, the grain dealer, his rates are less than Kinsman's are from LaMoille.

Mr. Eustis: That is not impossible.

Delegate: I know they do pay more from Wyandot than they do from Princeton.

Mr. Eustis: That may be.

Mr. Fred Rankin: I would move that we extend to Mr. Eustis for his courtesy and admirable address a vote of thanks by standing.

Every one in the house responded by rising.

Mr. Moore: We will now have the pleasure of listening to an address from Mr. S. H. Greeley, Vice President of the Illinois Grain Dealers' Association:

MR. CHAIRMAN, LADIES AND GENTLEMEN:—It is said that no good can come from Chicago, and in line with that theory my address may be a disappointment to you. It is at the request of Secretary Tyler of the Illinois Grain Dealers' Association, of which I have the honor to be Vice President, that I have accepted the invitation of your officers to meet you this afternoon.

It is not as republicans or democrats, or populists or christians that you are assembled here at this time, but as lovers of your homes, citizens and wealth producers of a great commonwealth, to hear discussed the question at this moment as broad as the continent, extending in its influence from the British possession on the north to the gulf on the south, and from Plymouth Rock to the far west. I refer to the question of the Chicago Public Warehouse Grain Trust, in line with the western railroads entering Chicago—the greatest monopoly in the world.

The Chicago Public Warehouse combination is made up of English, New York and Chicago capital, and is supported by the western railroads entering Chicago. The objects of this trust are:

First—To act as agents of railroad interests to draw grain to Chicago, thus preventing its diversion to any intermediate junction point to some other line which might cut short the full freight for the longest possible haul on the original road.

Second—To mix, manipulate, sort and manufacture untold quantities of inferior grades of grain into those improved grades which will apply "on contract" under the rules of the Board of Trade, and sell them for future delivery. This grain is so manufactured as to barely pass inspection into such improved grades, the object being to make them as undesirable as possible to the purchaser in order to force its continuance in the elevators to accumulate storage charges rather than seek shipment and consumption.

Third—To block the natural flow of commerce, and hoard millions upon millions of bushels at market centers to depress prices, for being carriers of grain for storage, pending the time of future delivery, for which the products

are sold, it is evident that the lower they can get the values of the crops the less the insurance, interest and other charges necessary to hold them, consequently the larger the profits. It might be stated also that the storage charges always remain the same, not depreciating in proportion to any decline in the value of the product. This system of hoarding grain and selling for future delivery most seriously tends to drive away and discourage investors and buyers, who are the farmers' best support. It forces them to liquidate or sell out the trust when their securities are exhausted by depression in the markets. The warehouse men that proceed to repeat the same game on a new set of buyers who are under the impression that grain is a "good purchase," thus perpetuating an endless chain of forced "liquidations." This storage load also encourages professional bear raiders and bucket shops, whose success is made possible to a large extent by the operations of the trust. These three gigantic interests, elevator and railroad monopoly, bucket shops and bear raiders, thrive on low prices. Farmers, merchants, laborers and all others suffer.

Fourth—To kill natural competition. It is quite generally believed that 75 to 95 per cent of the grain now handled through these public warehouses sooner or later become the property of the warehouse men, being thus allied with the railroad interests, as explained before, they are favored with the elevators in many cases without charge, and while the original intention of the State law was that of simply a custodian of the grain of the public, they now transcend that duty and compete with the public as merchandizers of the crops. The public pays full storage rates, probably the most excessive in the world, and the warehouse men none. It would be just as reasonable for the Chicago & Great Western road to enter the grain trade, and make its own rates of freight to itself, as a grain merchant, as against the people who pay full tariff rates. Or to illustrate further: Suppose the collector of the port of New York should engage in the tea, coffee or silk business, and pay no duty on his imports, but charge all the other handlers of these goods full duty. And not only this, but should take upon himself the right to mix, sort and manipulate in trade the silks, teas and coffees of the public. How long would competition with him exist, and especially when favored with a free custom house and special privileges from common carriers when he shipped the goods?

Inquiry will prove that competition for the crops is already nearly extinct and that the trust at no distant day will set its own price, not only for the grain sent to market, but force a value on that much larger volume which remains unsold on the farm.

Two things must be done—educate and organize the masses—tell the farmers that forces are at work to make their products sell under cost of production and place mortgages on their farms. Inform manufacturers why to demand their goods, with millions of producers struggling for a mere subsistence. Enlighten laborers as to the causes for their discharge in dull times. Let farmers and laborers learn that their battles are the same, and that wheat into 60's and 50's, corn under 30 cents, and oats around 20 cents in Chicago, with ruinous rates of freight to be paid out of these figures presents a condition important to all—a disease known as "under consumption."

The underlying primary cause of depression in prices is public official acting as a private grain dealer in a public warehouse with the permission and coöperation of railroad companies. Many of the causes of hard times in recent years arise from this alliance, and to sever it and demand a change that will rectify the evils will necessitate a public sentiment as strongly organized, influential and determined as the trust.

It should not be overlooked that public grain warehouse men are servants of the people, licensed by the State, created by the virtue of the necessities of commerce who, while authorized by law to act as custodians only, usurp their duties, form a trust, and year by year kill the interests of producers who create them.

When it is clearly understood that they are the greatest factor in the pits at the market centers, shaping values of crops annually of 3,500 millions of bushels, worth from one to two billions of dollars, our farmers and laborers

should open their eyes for light, and especially so when the motto of the trust is "The lower prices, the larger our profits." Who guards the farmers' interests in the market where, to a large extent, values are made?

In 1896 in a civil suit before the circuit court Judge Tuley decided that a public warehouse man could not deal in grain. After this decision was appealed to higher powers, whom they held in fear, the elevator men hastened to Springfield, and if reports are correct, used unlimited boodle to secure the right by State law to continue their nefarious practices.

After the passage of this law, known as the Warehouse Bill, the decision of the Supreme Court was made public sustaining Judge Tuley.

Voters of Illinois, find out at once how your State senators and representatives of your district voted on this bill, and if their ballots were for it, see to it that they remain hereafter in their political graves, regardless of party, and support only those who pledge the repeal of that infamous law. There can be no general prosperity in this country until forces conspire to advance rather than depreciate values of crops. Members who opposed the bill can be relied upon to repeal it. See that they are returned.

The Chairman: Hon. J. Hyde will next address us on the subject, "The Farmer as a Producer."

THE FARMER AS A PRODUCER.

With regard to the importance of the farmer as a factor in production, it is easy to derive very faulty notions from a hasty inspection of the published results of the last census. In 1890, by that evidence, the estimated total valuation of farm products in the United States was 2,460 million dollars, while the aggregate value of the products of manufactures is given as 9,372 million dollars, or nearly four times as large a sum. But it would be a very great mistake to conclude from those figures that manufacturers had anything like four times as important a part in creating the wealth of our country as farmers had, in the year 1890. The truth is, here as with many another valuable statistical datum, we are in danger of going astray unless we take the trouble to shake our results apart more or less: at least sufficiently to determine a little more precisely what they mean. This we do in case of manufactured products by considering the item, "Cost of materials used." Take for example the flouring and grist mill products, whose value is given as 514 million dollars, not far from one-eighteenth of the whole value of the country's manufactures for the census year. The cost of materials was in this case no less than 434 million dollars, 84½ per cent of the produced value; from which it is plain that this huge sum, the result entirely of agricultural industry, has been transferred bodily to the account of the line of productive activity with which we had thought to compare it. Next to flouring and grist mill products, the census table of manufactures by specified industries gives on one side "flax dressed," of whose produced value the cost of materials made up 65 per cent; and, on the other, "food preparations," where that cost amounted to 57½ per cent; the cost for both items being already included among the products of our agricultural industry. If we are going to make a fair comparison between the productive power of farming, and that of manufacturing, values that are altogether the product of the farm, should not be added to both sides.

But there are other deductions to be made from the 9,372 million dollars worth of manufactured products in the census year 1890, before we can arrive at a just conclusion as to the real contribution of our manufacturers to the production of values. Take, for example, the industry next in alphabetical order after those just considered, that the foundry and the machine shop products, where the cost of materials amounts to 41½ per cent of the total value. Those materials, it is quite obvious, are included again in another part of the table, forming what is counted as a product of the iron and steel industry. Similarly we might deal with every item on the list, tracing the materials used either to the product of other manufactures, or to that of some other line of activity—the farm, the forest, the mine, or to producers abroad in case

of imported material—and so proving that the importance of manufacturing in wealth production is to be estimated, not by the total value of the product turned out, but by the value added to the product by the industrial process, a value found by striking the cost of material altogether out. This diminishes our total of 9,372 million dollars by no less than 5,162 million, leaving a total, to be credited to manufacturing industry, of 4,210 million dollars worth; this total “including receipts from custom work and repairing.” It seems worth while to call attention to this matter at some length, simple and evident as it is when once fairly presented, because the tables insist on giving the gross value of products, in which the same item is included—more than once in very many cases, in some over and over again—leaving the inquirer to work out for himself the result which is always far more significant in the aggregate of different industries, the added value—that is to say, the entire value to be ascribed to the industry he is considering. An allusion is made to the matter, it is fair to add, in the introduction to the census table of manufacturers, not very conspicuously, however.

Are there corresponding deductions to be made from the reported total of of farm products? A few doubtless, but very few. The farmer produces his material, as a rule, and does not depend upon others for it. The tools he uses up in the cultivation and gathering of his crops are, perhaps, to be classed along with materials used, and their value credited to the industries which produced them; but the amount which agriculture thereby owes to manufactures, as shown in the total of agricultural implements for the census year (81 million dollars worth, of which nearly 4 million dollars worth were exported) is little over 3 per cent of the tabulated total. The amount to be added to the tabular 2,460 million dollars for omitted items, and under estimates by the producers; on the other hand, is immensely larger. In the introduction to the census table of agriculture, the following explanation is made:

“These figures do not include either the value of live stock on farms June 1, or the value of live stock on farms that have been slaughtered, or sold for slaughter, during the census years. Furthermore, the values of products, whether total for all products or for specified crops, are the results of estimates given by the farmers themselves, although when apparently erroneous estimates were given they have been the subjects of correspondence. The values, therefore, must be taken as estimates, and with the understanding that they are considered too low.”

Estimates of the total value of the agricultural products of the country for the census year, including meats and other products omitted from the tabular figure, are not lacking. Two of these have been given out by the U. S. Department of Agriculture. In a recent bulletin entitled “Statistics of the Dairy,” Major H. E. Alvord aggregates the “value of principal farm products of the United States” for the year as \$3,758,519,483. Prof. J. R. Dodge, the veteran statistician, in an independent estimate, reaches a total, for the same year, of \$3,829,000,000. If either of these totals could be adopted, it would place the agriculturist fairly along side the manufacturer, as a producer, for 3,829 million is only nine per cent short of 4,210 million. Nevertheless, even if we accept all the individual items of Mr. Dodge’s estimate, it is impossible to resist the conviction that the sum is too large; for it can not be denied that they include some duplications, namely, items included first as “corn”—and the same is true to a small extent of hay and oats—and afterwards as “meats” and “dairy products.” The materials that are consumed in the elaboration of animal products are evidently to be deducted from the final value of the product by the same rule followed in allowing for materials of manufacture. Prof. Dodge himself, many years ago, concluded that half the annual corn production of the country was absorbed in this way; and it therefore follows that the figures just quoted must sustain a diminution of at least 300 million dollars in order to show the farmers’ net product. This allowance would bring the result down to a figure not far from 3,500 million, five-sixths of that belonging to manufacturing production by census evidence, instead of the beggarly proportion of one-fourth, as would appear from the face of the returns.

So much in vindication of the rank of the farmer as a producer in the aggregate. It would be interesting to follow the comparison between him and the manufacturer from year to year, if we only had the data; but though farm

production is, as to the most important crops, reported annually by the Department of Agriculture, there are no similarly comprehensive figures for manufactured products except those obtained once in ten years by the census. It would be possible, doubtless, to use the figures published by the trade journals for special industries—such as iron and steel—making the allowances necessary to put them all on a common basis, and filling up for the unreported industries by careful estimates; but the gaps are so wide as to make such work difficult to him who has to do it, and highly unsatisfactory to him who is expected to accept it. Nor are the census figures so entirely suited to our purpose as they would be if each census were less independent of those preceding it. Every succeeding decade finds included in the table of manufactures industries omitted the preceding decade, and this, along with the greater degree of thoroughness with which the progressive settlement of our area enables the work of enumeration to be done, has the effect of showing a higher rate of growth in some of the census returns than a uniform method with complete data would afford us. This criticism has more application to returns from manufacturing than from agriculture, and helps to explain a part of the apparant growth of the former by comparison with the latter; but, even after making all allowances, it will hardly be denied that the country is gradually working its way from the prevailing agricultural to the prevailing manufacturing class.

But, if other industries are increasing their outturn at a greater rate than is agriculture, the farmer can not complain of any failure to appreciate his efforts on the part of customers abroad. Although that part of the export of domestic merchandise which is classed as distinctively agricultural, no longer exceeds 80 per cent of the whole, as was generally the case before the civil war, it still amounts to about double the value of the exported merchandise from all other sources put together. In absolute valuation, our agricultural exports are not diminishing but increasing. They reached during the fiscal year ending last June, the highest figure ever attained, a little over \$853,000,000 worth; this exceeds by nearly 7 per cent the next highest annual figure, that of the fiscal year, 1881-92, while it is more than double the value for 1870, and more than treble that for 1860. This majestic sum, forming more than 70 per cent of the largest total value of exported merchandise recorded in our country's history, is made up of \$334,000,000 worth of breadstuffs, along with \$230,000,000 coming from raw cotton, \$156,000,000 from provisions, \$46,000,000 from live animals, and \$77,000,000 from sundry minor articles. Of the provision class a little over two thirds, (\$112,000,000,000 worth), were contributed by hog products; and of the breadstuffs class, wheat furnished \$146,000,000, wheat flour, \$69,000,000; and corn and corn meal, \$76,000,000 worth.

The last item is particularly interesting to all who take pleasure in our increased exportation of that noble grain; and the officers connected with the Agricultural Department, who have been laboring for years to increase the use in Europe of this, our national food grain, find special satisfaction in noting that though the export of the fiscal year, 1896-97, was unprecedented (being 177,000,000 bushels—the highest previous figure being 103,000,000 in 1889-90) the amount for 1897-98 was 209,000,000 bushels, 18 per cent higher. This increase was made in the face of a simultaneous increase from 80,000,000 to 148,000,000 bushels in wheat, and from 35,000,000 to 69,000,000 bushels in oats. Under all these circumstances there is good ground for hoping that our satisfactory corn export has come to stay. Our European friends may be expected to take more of our favorite grain, because they will find that they want it.

Whatever interest and gratification we may find in these facts with regard to our export trade in agricultural products, it must never be forgotten that that trade disposes of but a minor part of the work of the farmer as a producer. Let us consider, for example, the large figure just given, \$334,000,000, as the value of our export of breadstuffs for the fiscal year last completed. Our foreign customers took far more breadstuffs from us than anything else, because 1897 was a year of short crops with them. The total value of the six cereal crops in the United States for that year (corn, wheat, oats, barley, rye and buckwheat) was \$1.121,000,000. This was the farm value; increasing it by 20 per cent for its added value at points of exportation, so as to render it

comparable with the export figures, we obtain a value of \$1,345,000,000, of which the exported 334,000,000 forms but 25 per cent. Not far from two-thirds of the country's cotton crop is invariably sent abroad, but our exports of other produce—hay, potatoes, etc., form so small a proportion that a final total of exported agricultural products would probably little exceed 20 per cent of the total production, even for years so exceptional as last year; while for 1894-95, when our agricultural exports amounted to but \$553,000,000 worth in all, 14 per cent would be a closer figure—other recent years ranging for the most part between those limits. It therefore follows that, important as is the market abroad, that at home is from four to six times as important to our farmer as a producer. This is a portion that he can not lose—that it is impossible for him to throw away—and it is pleasant to reflect how large this portion is in comparison with what is at the mercy of all the vicissitudes of foreign demand.

The subject has here been broached only; far from adequately treated, still farther from exhausted. Fully to show the part the farmer bears in production it would be necessary to do justice to his important contribution of raw material to manufacturing industries and of custom to transporting industries. The farmer not only sustains all other workers within the country, but bears the leading part in keeping our international commerce afloat. By furnishing products for internal revenue taxation he helps to fill the national treasury with one hand, and by sending goods out in exchange for imports from abroad, he brings it customs revenue with the other. The American farmer is not a man to be overlooked. "They reckon ill who leave him out."

The Chairman: Mr. Gale, Chairman of Committee on Resolutions, has three more resolutions to present at this time.

Mr. Gale read the following resolutions:

RESOLUTIONS.

WHEREAS, The State of Illinois is the richest and one of the most productive corn states, if not the most productive in the corn belt, and

WHEREAS, The American Maize Propaganda, a national organization, with State auxiliary associations, is endeavoring to increase the export of corn, corn flour, corn meal, and other products of corn, and is expecting to make demonstrations in cooking at the Paris Exposition in 1900, and in other cities and manufacturing centers in Europe; and

WHEREAS, Of the appropriation of \$650,000, which has already been made by the Congress of the United States for the Paris Exposition, only \$75,000 can be expended for an agricultural exhibit, including horticulture, the entire range of food products and beverages; and

WHEREAS, The said appropriation is altogether inadequate for the purposes named in the bill, and the expenses will be involved in the proposed corn kitchen at the Paris Exposition; and

WHEREAS, An increase in the export of corn, corn flour and of corn meal, the cheapest of all food products, is a matter of great pecuniary interest to the producers of Illinois, both in respect to the value of their lands and the income from them, as well as to the farmers in all the states comprising what is known as the corn belt; and

WHEREAS, The value of Indian corn and its products are but little known in foreign countries; and

WHEREAS, In the year A. D. 1891 not a pound of Indian corn meal was exported from this country to the Scandinavian countries, or to Germany, but all efforts since that time have met with most encouraging results; and

WHEREAS, One cent per bushel advance in the price of corn would add \$2,400,000 to the annual income of the farmers of Illinois alone; and

WHEREAS, The normal production of corn in this country is largely in excess of our domestic consumption and the present foreign demand; and

WHEREAS, The Paris Exposition of 1900 offers an exceptional opportunity for acquainting large numbers of people from the various countries of the earth with the food value of Indian corn, and the value of its products for other uses, by making practical demonstrations of its value as human food, in a corn kitchen and restaurant, thus causing the exports of the product of corn to be largely increased and its price enhanced; therefore be it

Resolved, That the State Farmers' Institute urge upon the General Assembly now in session at Springfield the passage of an act to encourage the uses and increase the consumption of Indian corn and its products in foreign countries, providing for the appointment of a commission and making an appropriation therefor; and further

Resolved, That the individual delegates here assembled are hereby requested to write their respective senators and representatives urging their hearty cooperation in behalf of the said bill, and ask them to vote for same when it comes up for passage.

The President: It has been moved and seconded that that resolution be laid on the table.

Mr. Snow: I believe it is allowable to bring the thing squarely before the convention. I ask your consent to my making a few remarks.

The President: Very well, Mr. Snow, you have the floor.

Mr. Snow: Not being gifted with any of the graces of speech-making or accustomed to public speaking, I shall have to urge your indulgence while I make a straight, plain business proposition.

Just go back a moment from 1890 to 1894. The average price of corn in this country was about forty-two cents a bushel. From 1895 to 1898, the average price has been twenty-five cents a bushel, a difference of nearly twenty cents a bushel. Have your taxes been lowered; are you as able to pay the tax with your corn land producing six dollars per acre a year less? Why that shrinkage? During the first period the annual production of corn in this country was over sixteen millions of bushels, and taking that production, you will find that the domestic consumption was around sixteen millions of bushels and your corn sold for forty cents. During the last period the production was over two billion, and taking out the exports, it leaves a trifle less than nineteen hundred odd millions. Only in the last four years have we been producing fifteen millions more than we have any market for. Now so long as that continues, you must naturally expect a low price, because the surplus will bear down. Now, what can be done to remedy that fall? There is only one of two things to be done, either you must grow less corn—fit the production for the demands—or you will have to increase the consumption. To undertake to shorten production is an impossible thing. It has been tried in other lines and you know it is not possible in corn. The question is, "Can there be a larger consumption of corn? In this country we know something of the food value of corn for human food. That it is nutritious and that it is cheap. But do you know it is claimed, and I believe with authority, that sixty-nine per cent of the people of the world have never heard of Indian corn as human food.

Now, if that sixty nine per cent, or any considerable portion, can have it brought to their attention,—that America furnishes a corn product that is nutritious, and above all, cheaper than the food which they now consume, is it not fair to suppose that we can build up a foreign trade for that production? Now, it is not necessary to even assume it. In 1890 and 1891, Secretary Rusk took up this question and commissioned a single man, Charles J. Murphy, and sent him to Europe to talk Indian corn. He had no means of demonstrating it, he was just sent abroad to talk it. He labored there nearly two years, principally in Germany, Scotland and Denmark. Soon after that, an eminent citizen of this State was appointed Minister to Denmark,—Clarke E. Carr. Carr took Murphy under his charge. He took him to the grocery stores and solicited them to try it. There was merely a parcel sold at that time. The treasury records will show that not a pound was exported at that time. The next year fifty-two barrels went; the next year one hundred; and the next year nineteen thousand two hundred odd barrels went to Denmark alone. If the same rate of consumption was inaugurated in Germany, it would require three hundred and fifty thousand barrels to supply Germany alone.

Now, we want the states to make a small appropriation to enable us to demonstrate at the Paris Exposition that Indian corn is cheap, that it is good for human food, and nutritious, and that we have it to sell.

Delegate: My position on this question is, that we use our Indian corn here, where we need it, instead of shipping it. I heard Mr. Stewart say that there was not a car load of corn shipped that was fit to make meal of after it got there. We could not carry on our dairies or feed our stock if it were not for our corn. Feed it up here and let us export to the foreign countries what they need in the shape of fruits, cheese, and whatever they want.

Mr. Rader: What would be the price of corn today if it were not for what we are exporting?

Delegate: We could use a good deal more corn if we would feed it up.

Mr. Snow: It so happens that in the last three years we have exported large quantities of corn and if it had not been so, God only knows what the prices of your corn would have been. We do not mean to ship the raw corn, we mean to ship corn ground, and made into meal, ready for food.

President Moore: If there is no more discussion of this resolution we will put it to vote.

Carried.

Mr. Gale then read the following resolutions:

Resolved, In view of the fact that the railways of the West concede to the cattle feeders of Kansas and Nebraska a "feeding in transit" applicable to all points in those States and refuse the same privilege to cattle feeders east of the Missouri River; be it

Resolved, That the Illinois Farmers' Institute remonstrate against this unfair condition of things and respectfully request western trunk lines passing through this State to correct the discrimination caused by these special privileges granted to these two favored States, thus diminishing market opportunities of the cattle growing States of the West, and decreasing the land and pasture value of Illinois, working a hardship upon both producer and feeder of cattle; therefore be it further

Resolved, That we insist on the abolishment of the special application of this rate and demand the adjustment of live cattle freight rates to put the feeders of Illinois on equitable basis with those of other States; be it still further

Resolved, That a committee of three be appointed to confer with the railway, the Inter-State Commerce Committee, etc., and to invite the co-operation in the matter of the Chicago Commercial Club, and the Illinois State Live Stock Breeders' Association, and report results to the next business meeting of the Directors of this Institute.

Mr. President: It is carried Mr. Secretary.

Mr. Gale then read the following resolution:

WHEREAS, Wide-spread publication of alleged interviews with high officials touching the army beef supply during the recent war has tended to discredit the quality of American beef and the integrity of its manufacturers, and

WHEREAS, Such reports, widely circulated, have already affected values and can not but injure our foreign trade in meats; therefore be it

Resolved, That we disapprove the spirit of sensational journalism and heartily endorse the reference of a matter of such magnitude to a special commission, whose findings must carry its weight of disinterested authority, and can not but restore confidence both at home and abroad.

Mr. President: It is carried, Mr. Secretary.

President Moore: In behalf of the Illinois Farmers' Institute, I wish to thank the citizens of Princeton, from the bottom of my heart, for their reception of us and their hospitality. The Institute will stand adjourned *sine die*.

FIRST ANNUAL REPORT OF ILLINOIS ASSOCIATION OF DOMESTIC SCIENCE.

The first annual meeting of the Illinois Association of Domestic Science was held at Princeton, Illinois, on Wednesday, February 22, 1899, beginning at 1:30 p. m. The meeting was called to order by the president, Mrs. Joseph Carter. In the absence of the secretary, Mrs. Emma Davenport, Mrs. S. E. Beede, of Princeton, was appointed secretary *pro tem*. The program opened with a musical selection by Mesdames Wagoner and Howard Bailey, and Misses Best and Lytle, of Princeton. Then followed the address of welcome by Mrs. Margaret Trimble, president of the Princeton Woman's Club:

ADDRESS OF WELCOME.

Members of the Illinois Association of Domestic Science.

I speak today for the people of Princeton, especially the women. I wish to tell you that we are very glad to see you; glad that you have seen fit to hold this, your first annual meeting, in our midst. It is an opportunity which rarely comes to a country town to meet and hear so many earnest and progressive women. We thoroughly appreciate the honor, and give you a most hearty and cordial welcome. There is this element of selfishness in our welcome, for we hope and expect much light may come to us upon the many vexed problems of modern home life, as well as much pleasure from your acquaintance. May we give a special welcome to those from that part of our State lying south of us. We most often meet women from Chicago or vicinity.

Mrs. Rorer said one day last week a very peculiar thing. She said that when she was in Springfield, Champaign or Bloomington, she felt, or was made to feel, that she was in Illinois—everything was Illinois; but when she came here she was just in Princeton. I do not know what she meant, but, fond as we are of our little town and country, we do not consider it a compliment. We are not all sufficient to ourselves, or able to stand alone. We believe that we are no unworthy part and that not without our story can be writ the wondrous glory of our beloved Illinois.

As housekeepers or mothers often become garrulous when talking of home or children, so permit us in our pride and fondness for home, to remind you of a few of the reasons why we welcome you to what to us is classic ground. Our history—the brave, sturdy pioneers who made this settlement in 1832—men and women who crossed the prairies of the west as the pilgrims crossed the sea, to make the west as they the east—the homestead of the free. Their hardships and deeds are a part of the nation's history. Some of the names you hear this week will not soon be forgotten. Lovejoy will live while men love freedom and liberty. The fiery abolitionist dwelt among us, and left his impress upon the community. Bryant, the poet of nature, was formerly frequently seen and heard upon our streets. He loved and wrote of our prairies

and trees, and his spirit, with that of his numerous kindred, has been an inspiration toward the planting of long rows of trees, making beautiful country homes, and a love of nature in her various forms that says: "It matters not who owns the dirt, I own the beauty of landscape in earth and sky." Many other names there are just as much beloved and revered by us who remember.

To these dear memories we bid you welcome.

I am reminded that you are a band of women gathered here from the length and breadth of the State to consider the subject of homemaking, and there is no question of more vital importance to a nation. It means so much, for out of our present day homes come those who will raise or lower the state of civilization in the world. The home as it should be is civilization. What is the new, the end of the century, woman, American woman, in the splendid freedom of thought and action which she enjoys, going to do for the physical, mental and moral character and atmosphere of the home? Her own home first, and then (if only for self-protection) the homes of others? Has homemaking become a science? Does economy mean a saving of money and material only, or of time and strength as well? How are we to lead simple lives? Is the domestic science question to be solved by the maid or the mistress?

Does domestic science mean more than sanitation, hygienic and economical cooking? Is the question of care and education of children included? Is organization a help or a hindrance to women in solving these problems? Mr. Moody does not believe in woman's clubs. But the words of his criticism show his recognizance of their object and of what they have accomplished. A woman's duty to home certainly means duty toward the school and community where the children live, toward the government and state.

The club women differ from others only in that all work together with unity of purpose, receiving from personal contact human sympathy and increased knowledge which fellowship brings about. May this new organization be able to cope with the problems of today and bring about solutions so that our lives may be simplified and we may secure help toward making our homes the source of the elements needed in the world—integrity, self-control, virtue, duty, as well as the place of peace, rest and joy—a type of our eternal home.

We hope that your stay among us will be agreeable, that your physical comfort may be well cared for, and that you will carry away with you pleasant impressions and memories of Princeton, its homes and its people.

In response Mrs. Carter said that she believed it to be a happy coincidence that this first meeting should be at Princeton. This is the right spot—'tis a happy omen. Princeton is the home of freedom; the home of Lovejoy. Domestic Science means freedom from the slavery of housework.

Mrs. Carter then introduced Mr. C. F. Mills, Secretary of the Illinois Farmers' Institute, who spoke enthusiastically of the movement, promising the hearty co-operation and support of the gentlemen, and saying that the Institute will support the organization financially and in all other ways. He said that four years ago it was almost impossible to find a lady who would consent to read a paper before the State Institute, now the most eloquent addresses and the best presentation of facts are given by the ladies. Then followed the report of the Secretary, Mrs. Emma J. Davenport:

SECRETARY'S REPORT.

At the annual meeting of the Illinois Farmers' Institute held in Champaign, February, 1898, an informal meeting was called for the purpose of organizing a State Domestic Science Association. At this meeting Mrs. Joseph Carter, of Champaign, was elected president, and Emma J. Davenport, of Urbana,

secretary. Nothing further was accomplished in the way of organization except that a few names were suggested of those who would likely be willing to further the interests of the Association in their respective localities. Letters were sent to these persons requesting them to do what they were able toward arousing interest in the subject of Domestic Science.

Later in the year, before the time for County Farmers' Institutes, through the courtesy of Mr. Mills, Secretary of the Illinois Farmers' Institute, a circular letter was sent to the Secretary of each County Institute asking him to suggest the names of the ladies who would likely be active in organizing in their county Domestic Science Associations. To these letters there were responses from about thirty counties throughout the State.

Letters were sent to the ladies whose names had been suggested by the secretaries, stating the objects of the Association as understood by the President and Secretary, there being as yet no constitution.

As the Association was intended more particularly to reach the farmers' wives, it was thought that the object could be best attained by organizing in connection with the County Farmers' Institute; that this—shall we say—might be the Housekeepers' Institute; and that while local clubs might well be formed for convenience of frequent meetings and closer study, yet the County Institute should be the central organization, and the time and place of its annual meeting should be the same as for the County Farmers' Institute, and preferably constitute a part of such meeting.

So the ladies were asked to organize County Domestic Science Associations in connection with the Farmers' Institutes. This is not intended to exclude from the Association existing organizations of similar objects, whether independent or in connection with Women's Clubs, but in order to organize the work of farmers' wives in connection with a system already designed for the benefit of farmers.

In response to those letters there came a request for a form of constitution and for helps for study, therefore there was sent out a suggested form of constitution and a few references for helps.

So far as is known to the Secretary, twenty counties have organized or expected to organize Domestic Science Associations, viz: Cass, Williamson, McLean, Sangamon, Winnebago, Mercer, Carroll, McDonough, Vermillion, Champaign, Stark, Jasper, Christian, Madison, Cumberland, Edgar, Montgomery, Menard and Bureau. Doubtless by this writing there are others, for returns indicating progress have been received from fifty counties.

The first annual meeting of the Illinois Association of Domestic Science was appointed at the same time and place as the Illinois Farmers' Institute.

Through the courtesy of the Institute management we were given a part in its program. The Association is indebted to the Illinois Farmers' Institute for many courtesies and much assistance through the Secretary, Mr. Chas. F. Mills.

I would suggest, therefore, that the Association extend to the Institute a vote of thanks.

(Signed.)

EMMA J. DAVENPORT, *Secretary.*

Mrs. Margaret Trimble, of Princeton, reported for the committee on the constitution, which was discussed and adopted article by article.

Article II. created considerable discussion. In reply to the question, "Is there room for the study in the public schools, and if so, how can we get it?"

Mrs. Mary Turner Carriel, of Jacksonville, said that the course of study can be condensed and thus make room for it; that power lies not in the subject studied by the children, but in the ability acquired to help themselves.

Mrs. Sarah Tyson Rorer, of Philadelphia, said that few of the great masses get to the university or even to the high school; that the salvation of our country is through the grammar schools; that our curriculum heretofore has been arranged from a man's standpoint, but that now let us consider the subject from a woman's point of view as well.

Mrs. H. M. Dunlap, of Savoy, said that in the country several districts could combine and in this way employ a special teacher; that where there are two rooms one of the teachers could be employed with this subject in mind.

The President, Mrs. Carter, said that it can be put into the town schools much easier than is supposed, and much cheaper. She said that in Urbana the ladies stood the expense last year, but that the experiment was such a success the school board has now taken the whole responsibility.

Mrs. Nellie S. Kedzie, of Bradley Polytechnic Institute, Peoria, said: "The movement is here and is here to stay. We have taught words long enough, let us teach things awhile. The time is with us and upon us. It is a good sign that the work is coming on a little faster than the teachers; the teachers will soon be ready."

When each article had been passed upon and adopted, Mrs. Carriel moved the adoption as a whole.

Mrs. Southworth, of Vermillion county, supported the motion which was carried.

Then followed a paper, "Organization," by Mrs. E. M. Coffman, of Mechanicsburg.

Mrs. S. Noble King, of Bloomington, reported for the committee on a course of "Reading," recommending the following books for study:

Dust and Its Dangers, Water and Ice, and the Story of Bacteria, by Dr. Prudens; Bread and Bread-making, by Zago; Food, by Letheley; Food, by Yeo; Chemistry of Food, by Mattieu Williams, Science of Nutrition, by Edward Atkinson; Health by Good Living, and the New England Kitchen Magazine.

The report was adopted as read.

Mrs. Trimble made a strong plea for traveling libraries, and told of some of the work the Princeton Woman's Club has done in this direction.

Mrs. King offered the following resolution, which was unanimously adopted:

"The members of the Illinois Domestic Science Association, endorse the appointment by the Governor, of a commission for traveling libraries, as well as for all other libraries, recommended by the Library Association, now in session at the University of Illinois."

Mrs. Carriel reported for the Committee on Resolutions, and offered the following, which were adopted:

"The members of the Illinois Association of Domestic Science desire to express their appreciation of the kindness and hospitality extended to them by the people of Princeton who have received them so cordially, and who have

welcomed them to their homes, more as sisters and friends than as strangers or guests. Also to the delegates and officers of the Illinois State Farmers' Institute who have so kindly ministered to our comfort and our convenience, as well as to our pleasure, and to the musician, the ushers, and the sweet singers, we wish to express our gratitude.

"The members of the Illinois Association of Domestic Science, while conscious that its organization is only in its infancy, yet are also conscious of its possibilities for strength, for growth, and for power, desire to place themselves upon record as endorsing most heartily the appropriation for a Woman's Hall for domestic science at our University of Illinois, and most earnestly hope that our legislature, now assembled at Springfield, will grant this appropriation to the mothers and daughters of our State who so long have needed it, and who most surely endorse it."

Signed,

MRS. M. T. CARRIEL,
MRS. H. M. DUNLAP,
MRS. E. M. COFFMAN.

PRINCETON, ILL., Feb. 22, 1899.

On motion of Mrs Carriel, a vote of thanks was extended to the officers of the past year.

Then followed the election of officers for the ensuing year.

Mrs. Kedzie moved that the secretary be instructed to cast the ballot of the association reelecting Mrs. Carter president.

The motion was seconded and carried.

Mrs. E. M. Coffman, Mechanicsburg, was elected first vice president, and on motion of Mrs. Carriel the secretary was instructed to cast the ballot of the association for Mrs. Emma J. Davenport, of Urbana, secretary.

Mrs. Dunlap moved that inasmuch as it was impossible to provide for the other vice presidents for the coming year according to the constitution, the wives of the Directors of Congressional Districts, as far as possible, be invited to act.

The motion was seconded and carried.

There were present at the meeting forty delegates from twenty different counties, but because of the lack of time it became necessary to omit reports from delegates.

Adjourned.

(MRS. S. E.) J. M. BEEDE,
Secretary pro tem.

CONSTITUTION OF ILLINOIS ASSOCIATION OF DOMESTIC SCIENCE.

ARTICLE I.

SECTION 1. The name of this organization shall be the Illinois Association of Domestic Science.

ARTICLE II.

SECTION 1. The objects of the association shall be to stimulate interest in all that pertains to Home-making; to induce the organization of domestic science associations; to coördinate the work of such associations; and to labor for the introduction of the study of domestic science into our educational system.

ARTICLE III.

SECTION 1. The following persons may be members of the association:

SEC. 2. Delegates from County Domestic Science Associations organized in connection with County Farmers' Institutes.

SEC. 3. Delegates from domestic science organizations of Illinois not affiliated with County Farmers' Institutes. In counties in which no domestic science association has been formed in connection with County Farmers' Institutes, the president of such county institute may appoint delegates to the meeting of the State association, and such delegates shall enjoy full membership, with privileges accorded other delegates.

SEC. 4. The officers of the year shall be members of the association, without reference to their appointment as delegates.

SEC. 5. Each county association and other housekeepers' clubs shall be entitled to two delegates.

ARTICLE IV.

SECTION 1. The officers of this association shall be a president, a first vice president, a Secretary, and one vice president for each congressional district.

SEC. 2. The president, first vice president and secretary, shall be elected by ballot at the regular annual meeting of the association, but the vice presidents shall be elected or appointed at the several congressional institutes in any manner said institutes shall determine, and in case of no election or appointment the vacancy shall be filled by appointment by the president of the State association.

ARTICLE V.

SECTION 1. The duties of the president and first vice president shall be such as usually devolve upon such officers.

SEC. 2. The secretary shall keep a record of all meetings of the association, of meetings of the executive board, and perform such other duties as usually devolve upon that officer.

SEC. 3. It shall be the duty of the vice presidents of the congressional districts to be active in the formation of county and local societies, and to be responsible for a domestic science meeting at the time of the congressional institute.

SEC. 4. The president, vice president and secretary shall constitute the executive board of the association.

SEC. 5. The duties of the executive board shall be to look after the business of the association during the year, and provide a program for the annual meeting.

ARTICLE VI.

SECTION 1. The State associations shall hold its annual meeting at the same time and place as the Illinois Farmers' Institute.

ARTICLE VII.

SECTION 1. Unless otherwise provided a majority vote of the delegates present shall decide a question.

ARTICLE VIII.

SECTION 1. This constitution may be amended at any regular annual meeting by a two-thirds vote of the members present, notice having been given at the previous meeting.

HOW SHALL WE ORGANIZE AN ASSOCIATION OF DOMESTIC SCIENCE?

By Mrs. E. M. Coffman, Mechanicsburg, Ill.

Ladies of the Institute:

I am very glad to be here and to discuss with you a question which is of vital interest to every man, woman and child on the face of the globe.

I fully realize the importance of the subject assigned me, and will endeavor to answer the questions in a straightforward, practical way to the best of my knowledge.

The question may confront you: How do women's clubs effect domestic life? Any thing against the higher life of the home is to be shunned; whatever strengthens it is to be cared for. In a broader sense there is no doubt that clubs for women strengthen and elevate womanhood. The drawbacks should be blotted out. Considered from the point of housekeeping alone, the club is an education.

Women learn business methods, they grow in executive ability, self-control, order, accuracy, and above all, in a due sense of proportion.

The cities and large towns have their woman's clubs and some of them have domestic science departments; but it seems to us that the best way to reach the farmers' wives is through an organization similar to the Farmers' Institute, and that shall work in connection with the institute of that county. Many do not know how to go about it to perfect such an organization. The study of domestic science may be done individually or collectively. But collectively as a club is the better plan. The needs of our people along this line are increasing. Organized effort is an essential in every community.

Best way I should say, form a society to meet not oftener than once a month for two hours. Have papers on various lines such as departments of food, sanitation, morals and manners, literature for the home, furnishing of the home, and others too numerous to mention.

There could be a paper from each department every time, for a while, until the ladies become accustomed to writing longer papers; and two persons should be appointed to discuss each paper.

Then the club should decide upon places of meeting. If it is in the pleasant months of the year and you do not live too far apart, I should say meet in your various homes. If any refreshments are served they should be strictly limited to very light eatables. But if you are as far apart as the members of our club association, it will be better to find a pleasant room in the central city or town.

Then the club should join the State Association and send a delegate to each State meeting.

Your club may not increase in numbers as rapidly as you would like. But the increase depends largely on the push and energy which your President displays. If your leader goes before and opens the way every member in the club will catch the inspiration and she will work with a determination to win.

There is one thing we must guard against, and that is becoming discouraged. Let us remember the old adage, "If at first you don't succeed, try, try again." But I am sure we have too many good true wives on our Illinois farms to allow this, one of our greatest friends, to fall behind.

Shame on the woman who has no patience with domestic science! There is no subject before the public today that should receive more hearty encouragement and attention from women than that of domestic economy.

The tendency in the trades and professions of today is towards specializing. That is to say, toward requiring special training for special work. While there are plenty of ways now open by which women can earn a comfortable and honorable independence, those who enter them must, as a rule, be trained. This world is no longer clay, but rather iron, in the hands of its workers, and we, the women, must hammer out a place for ourselves by

steady and rugged blows. It is a sublime spectacle to see a woman going straight ahead cutting her way through difficulties and surmounting obstacles as though they were stepping stones to success. I believe that many farmers' wives belong to this class of persons.

Surely this grand old State would become a place of smiles if each one of us, notwithstanding adversity, bereavement, or ill-health, would join the association, where they talk happiness, talk faith in God, and talk health.

It is a great satisfaction to know you are a member of a society that always looks on the bright side of life, to think of pleasant things, to give utterance to words of cheer and hope, and bid sorrow depart. Indeed, a persistent effort of this sort on the part of mothers alone would change the atmosphere of many a home. Let our Domestic Science Club be a school for smiles. Let each member try to carry sunshine to every home in which they come in contact. Women are waking to the fact that conditions may be improved by a better understanding of the laws governing them. Domestic science is slowly but surely growing in favor. There is scarcely an Agricultural College west of the Ohio that has not a Chair of Domestic Economy.

If clubs will organize with president, secretary and treasurer and meet at appointed times, and through the secretary report proceedings of their meetings to the magazine "*What to Eat*," they will publish the items of interest and each society will be brought into touch with every other society, and all will be benefited thereby. There is always an advantage in a definite plan of work of any character, and there is strength in coöperation. The work of this Association should be undertaken in a coöperative spirit, each club desiring not only to receive, but to impart knowledge gained by experience. The question may arise, "How are women to obtain this knowledge?" I answer, by studying the subject, and there is no doubt that the majority of women would do this could they but realize the awful consequences that may and often do befall from simple ignorance of the first principles of domestic science.

Keep close watch of your book stores—read every magazine or book that you find that will give you any information on organization of domestic science work—compare notes, decide which is the better plan and give the society the benefit of your investigations. You may not be right, but by expressing your ideas you may awake some grand and noble thought in some one else. We must remember we are not to live for self alone. We do not want a selfish world. But by the united efforts of the dear sisters of the Domestic Science we may reach out a helping hand to every farmer's wife in Illinois, the discouraged ones especially. Let us unfurl this, our banner, so grandly that the noble women of other states will catch the inspiration and will join with us heart and hand to make every farmer's home a model home.

When the husband returns from his work in the field what a pleasure it must be to him to find his wife the true helpmate, always with a smile, glad to have him with her. He has no desire to leave her home while he drives to the village for the mail in the cool, pleasant hours of the evening, but would far rather she would accompany him. Do you think this couple will grow old? Not soon; not so long as they carry sunshine with them everywhere they go. Women have special need of all the bodily health and vitality they can get. The pressing indoor duties, of which most of us have our share, are easier and better done when we can bring them the freshened vigor we have gained out of doors. Keen breezes and bright sunshine penetrate both the mental and physical being, and open up the entire nature to healthful influence.

There are many occasions in which the thoughtful note of a friend meets with appreciation. The monotony of illness is cheered by the receipt of a bright little note, and any woman can send it though she can not afford roses and lilies.

If by chance they are renters the fatigue of removal from one farm to another is forgotten in the moment of reading that a friend is sorry she is gone. Kindness is one of the laws of domestic science—ever thinking how we may brighten some other life.

It may be possible to carry too far the custom of gift-giving, but we are not likely to over-cultivate the habit of writing kind words. The pleasantest things in the world are pleasant thoughts, and the greatest art in life is to have as many of them as possible. The expression of thoughtfulness and remembrance brings a cheer which is worth vastly more than is the effort expended in penning them. The prompt reply to a dinner invitation, the acknowledgement of a gift, the speedy answer to the request to be a helper in work undertaken by this society or by any charitable organization, as well as written communications of other kinds, every woman knows are matters as unexcusable as is the mother who fails to train her children in courtesy, in obedience and in honor. The woman who has little interest in the rapid making of history and in the great achievements that move the world, is the one who is the loser. It matters little what one thinks of our great cause, domestic science, as far as women and the cause are concerned, but it does matter greatly to the one who makes the estimate.

Some one has said that a half hour over a dinner table with a famous woman is worth more than reading all her books. If this is true of noted people there is a thought in it for us.

Surely we gain more from the friend who sits at our table, who breaks bread with us, than from the other one with whom we exchange formal calls. Some way or other our lives come in touch with each other and we must become acquainted with our sisters on the farms adjoining us or we will never make a success of our club. Someone may ask, "What is our duty?" The carrying out of the affairs of the day that lies before you. A woman must not choose her neighbor; she must take her neighbor that God sends her. In her, whoever she be, lies hidden or revealed a beautiful sister. The neighbor is just the woman who is next to her at the moment. This love of our neighbor is the only door out of the dungeon of self. Whenever you are ready to do good the opportunity will be at hand.

I have made it my habit to ask every lady in my community if they would like to join our Domestic Science Association. Most generally the first question is, "What kind of a society is it? I never heard of it before." And some of these women were practicing domestic economy before I was born, yet ask me what it is. When I reply to their question by simply saying, "A better knowledge of home-making and many of our dear girls are getting that knowledge in many of our schools today," they seem surprised. When I try to explain to them that housekeeping is a science and has become so much of a trade and profession at the present time as the years come and go, and there are so many wives that lack the art of making a home what it should be that it was thought best to form an association and see if something could be done toward making more intelligent farmers' wives and mothers, I have found it quite difficult to get them to fully realize that we really have a club of this kind—not a club talked of, but fully organized—really on foot, walking abroad in the grand old State of Illinois.

On all sides the nineteenth century has thrown wide the doors of opportunity to our girls. It is the imperative duty of our girls to show themselves worthy of the high plane on which they now stand. "With all thy getting get understanding," says the Bible. To the young girls of today, I would say, "With all thy getting, get character, for without character you are as sounding brass or tinkling cymbal." In your eagerness to get education, position, fame, and worldly honor, do not overlook the greatest thing of all—the art of home-making. Some day, dear girls, the door of the house will be opened for you to step in, and it depends on you whether it shall be simply a house or a lovely attractive home. You owe it to yourself, as well as to your husband to perform the duties of your position faithfully to the very best of your ability. The world expects it, society demands it, and your own highest self calls upon you to do your best.

The world wants no careless, indifferent or half hearted worker; it wants the best, to do your best, to put your whole heart into your work—to fill your place in the domestic science club as it never was filled before—to make yourself worthy of better things. Make up your mind at the outset that you will

be your own most rigid task master. That even in the smallest things you will accept nothing but your best, and your life will grow broader, richer and more useful day by day.

Never try to deceive yourself by word or deed, but stand out firm and strong for the right and in a short time the farmers' wives will become one united band for good, being joined as one grand chain the links will reach from home to home, and no life any longer a burden,—but every day a day of peace, every thing you see or do is all done in the sweet, gentle element of love for one another.

We believe the most of our divorces are caused by the lack of home-making. If food badly selected, and still worse prepared, and most badly served cause discontent and bad temper among those who by ties of blood are near and should be dear to one another, we are not surprised that the inmates of the home look for pleasure and seek their enjoyments outside the cheerless, uninviting, depressing home, which the wife and mother has utterly failed to make what it really ought to be.

What matters if the future wife of our sons of today fail in attempt to paint a beautiful landscape, or in her attempt to sing a solo to perfection. But how grave a matter if she fail to make and keep a home for her young husband—fail when expending his income to purchase with prudence and judgment—fail to prepare for him a wholesome and appetizing meal—fail to train their dear little ones with proper care for their physical and moral welfare.

Often so engrossed with society, she turns her darling little one over to the care of the inexperienced nurse, her kitchen to the careless domestic; flatters herself the child is as well with nurse as mother. But her better self realizes this is not true. As the years roll on, if this lady of fashion could hear some of her companions say how rude and what poor manners Mrs. So-and-So's little child has, how quickly she would see her mistake. She would turn her attention to her child, but alas, too late. It is only another golden opportunity lost forever.

Mothers, I beg of you give your children the bright side of your life; be kind to them; teach them that obeying nature's laws makes noble men and women of us all, when wealth, education and pedigree have failed.

Twelve years ago Mrs. Ellen H. Richards said, "The time has come when we must have a science of domestic economy," and it must be worked out in the homes of our educated women. The conditions of life are so peculiar in this country that no plan made for another land will suit us; we must make our own.

It would be very inconvenient for your president of domestic science to visit every farmer's wife in the county, but we believe we may reach them by forming auxiliaries in every township, appoint some one to visit them and lend them a helping hand until we are satisfied the club is established and fully competent to stand alone. When we have formed a society in every township we might offer a prize for the best report sent in to the Farmers' Institute from each auxiliary. Here a great monster confronts us. We realize no organization can be run without money. How are we to obtain it? I should say by taxation. We must not make our taxes very large. A good plan, we think, not to allow it to exceed ten cents a month. You should endeavor to make your meetings as informal as possible, not taken up with the reading of elaborate papers, but with discussing some topic of general interest which will lead every member to contribute of her knowledge to the edification of the others. Encourage every member to give as well as receive. As the years go by the meaning of domestic science will be unfolded and the noble work that has been done by generations of the world's best men and women will serve as a guide and inspiration to our children. Oh! the blessedness of learning with, and from, and for our children.

We, as mothers, have opportunities of teaching these things from our very nearness to the child that no other human being has, and let me say to you, oh, busy mothers, with children at your knee, get in your work early; they will not always be there.

In domestic science work, as in every other, there must be an intelligent understanding, and there is a vast amount of information in such magazines as *Good Housekeeping*, *The American Kitchen*, *What to Eat*.

Why would it not be a good plan to have a magazine club which is far the most inexpensive and economical way. Then you would have the benefit of the investigations and experience of the foremost men and women of the land fresh on your reading table every week in the year. These magazines are conducted in the interest of the higher life of the household. The proudest reputation a woman could earn half a century ago was that of being a notable housekeeper. The richest woman in the country considered it her first and most sacred duty to know not only how to cook, wash, scrub, and the like, but how, by sheer executive ability, to manage her household; and our women will take on wrinkles later in life, suffer less from nervous prostration, and mentally not lose a whit because of lifting housekeeping up to the high plane where it belongs. Whether or not the domestic problem be considered much now, the undisputable fact remains that it is today the most serious and important factor in the duty of home making and housekeeping. No matter, therefore how much may have been said or written, this subject is one very much alive and will not down. It rears its head in the path of every young housekeeper and it enters the home long established, with fine impartiality.

F. R. HAVERGAL.

A blessing to each one surrounding me,
 A chalice of dew to the weary heart,
 A sunbeam of joy bidding sorrow depart;
 To the storm-tossed vessel a beacon light,
 A nightengale song in the darkest night,
 A beckoning hand to a far-off goal,
 An angel of love to each friendless soul,
 Such would I be.
 Oh, that such happiness were for me!

MINUTES OF MEETINGS OF DIRECTORS OF THE ILLINOIS FARMERS' INSTITUTE.

STATE HOUSE, SPRINGFIELD, ILLINOIS,
September 29, 1898, 7:30 o'clock, P. M.

The Directors of the Illinois Farmers' Institute met on the call of the President.

Called to order by President Moore.

The following Directors responded to the call, viz: Bartlett, Beal, Coolidge, Dean, Dolton, Dunlay, Grout, Freeman, Kimzey, King, Lindenman, Mann, Mills, Moore, Rossiter, Shank, Steenberg, Wilmarth and Wilson.

The President stated that the meeting had been called for the purpose of considering applications for the location of the next annual meeting of the Illinois Farmers' Institute, and the transaction of any other business of the Board.

The following applications for the location of the annual meeting were read, viz:

PARIS, ILL., September 25, 1898.

Hon. Charles F. Mills, Secretary, Springfield, Ill.

DEAR SIR:—At a late day your communication addressed to Mayors was handed me. The same I have carefully read, and I feel certain that in extending to you and your Association an invitation to hold your next annual meeting in our city we can promise to more than fulfill your requirements.

At this late day I have not the time to furnish you with written pledge as you desire, but will say we have the rooms. In fact everything you require, and we have also the people who will guarantee to carry out any proposition that our representative may make to you. Our location is a little to one side of the State, but that is no barrier, as should you favor us we can promise you many visitors from our sister State, Indiana.

Regarding railroad facilities, our location is equal to any, and I hope your committee may favor our city in your selection.

On behalf of the citizens of Paris and of Edgar county I extend to you this invitation.

Yours most respectfully,
D. D. HUSTON, *Mayor.*

PRINCETON, ILL., September 17, 1898.

Mr. Charles F. Mills, Secretary, Springfield, Ill.

DEAR SIR:—At a meeting of the citizens of Princeton, Ill., held on September, 17, 1898, it was determined to invite the Illinois Farmers' Institute to hold its annual meeting in February next at said city, and the undersigned, Mayor of the City of Princeton, Bureau County, Ill., and the Chairman and

Secretary of said meeting hereby invite the Executive Board of the Illinois Farmers' Institute to hold their next annual meeting, February 21, 22 and 23, 1899, at Princeton, Ill.

We promise you a cordial welcome and courteous treatment.

We agree to furnish a large and suitable hall, heated, lighted and decorated for the meetings, also a hall for exhibition purposes.

We agree to make application, in proper season, for reduced rates on railroads.

All delegates and others attending the Institute will be furnished good accommodations at reasonable rates. The hotels will make a rate to those attending the Institute of one dollar and fifty cents per day (\$1.50). Accommodations at boarding houses will be provided at one dollar (\$1.00) per day.

We also agree to see that the proper local committees are appointed, whose duty it will be to see that all necessary arrangements are made for the exhibit, and who will look after the reception, comfort and entertainment of all visitors and delegates.

RICHARD M. SKINNER, *Mayor of the City of Princeton, Ill.*

ARTHUR BRYANT, *Chairman of said Meeting.*

C. N. KEITH, *Secretary of said Meeting.*

SPRINGFIELD, ILL., September 12, 1898.

Col. Charles F. Mills, Secretary Illinois Farmers' Institute, Springfield, Ill.

DEAR SIR:—The city of Springfield makes application for the location of the next annual meeting of the Illinois Farmers' Institute, to be held Tuesday, Wednesday and Thursday, February 21, 22, and 23, 1899.

The citizens of Springfield will furnish, as heretofore, and free of cost a suitable hall heated, lighted and well arranged for the eight sessions of the State Institute.

Second. A suitable room will be furnished, heated and lighted, with tables and furnishings for the exhibition of farm products, fruit, pantry stores, etc.

Third. Excursion rates on direct and connecting lines of railroads to Springfield will be secured for the meeting.

Fourth. Assurances are hereby given that reasonable and satisfactory rates will be given by the proprietors of hotels and boarding houses to delegates and others in attendance at the State Institute meeting.

Fifth. Efficient local committees will be appointed to assist in advertising, providing music and the reception of visitors, arranging exhibits, selecting awarding committee, etc.

With one exception, all the annual meetings of the Illinois Farmers' Institute we are advised, have been held in either the Senate chamber or the hall of the House of Representatives, and no better accommodations than the State House can be provided elsewhere in the State.

The citizens of Springfield can be depended upon to furnish all accommodations desired by your honorable body, and there will be no lack of effort on the part of the State or city officials, or residents of Springfield to make your meeting here agreeable and satisfactory in every respect.

I trust that we may have the pleasure of welcoming you to our city once more.

Very truly yours,

L. E. WHEELER,

Mayor.

Hon. H. M. Dunlap made a verbal application for the location of the next annual meeting of the Illinois Farmers' Institute at Champaign.

Motion of Mr. King adopted, that the board proceed to vote on roll call for the location of the annual meeting of the Illinois Farmers' Institute.

Remarks were then made by Mr. Dunlap in favor of Champaign. Mr. Willmarth spoke in favor of Princeton, Messrs. Shank and Hollingsworth in favor of Paris, and Mr. Mills for Springfield.

The first ballot resulted as follows:

Champaign—Dunlap, Mann and Moore—3.

Paris—Beal, Dean, Dolton, Kimzey, King, Lindenman, Rossiter, Shank and Steenberg—9.

Princeton—Bartlett, Willmarth and Wilson—3.

Galesburg—Grout—1.

Springfield—Freeman and Mills—2. Total, 18.

Necessary to choice—10.

The second ballot resulted as follows:

Champaign—Dunlap, Mann—2.

Galesburg—Grout—1.

Paris—Beal, Dean, Dolton, Kimzey, Lindeman, Rossiter, Shank, Steenberg—8.

Princeton—Bartlett, Coolidge, King, Moore, Willmarth and Wilson—6.

Springfield—Freeman, Mills—2. Total, 19.

Necessary to choice—10.

The third ballot resulted as follows:

Champaign—Coolidge, Dunlap—2.

Galesburg—Grout, Kimzey—2.

Paris—Beal, Dolton, King, Shank—4.

Princeton—Bartlett, Dean, Lindeman, Mann, Moore, Rossiter, Steenberg, Willmarth and Wilson—9.

Springfield—Freeman, Mills—2. Total, 19.

Necessary to choice—10.

The fourth ballot resulted as follows:

Champaign—Dunlap—1.

Galesburg—Grout—1.

Paris—Beal, Dolton, Kimzey, King, Shank—5.

Princeton—Bartlett, Coolidge, Deau, Lindeman, Mann, Moore, Rossiter, Steenberg, Willmarth and Wilson—10.

Springfield—Freeman, Mills—2. Total, 19.

Princeton having received a majority of the votes cast, was declared the choice of the board for the location of the next annual meeting of the Illinois Farmers' Institute.

Motion of Mr. Dolton adopted, that Princeton be declared the unanimous choice of the board for the location of the next annual meeting.

The following resolutions were adopted, on motion of Mr. King:

WHEREAS, The College of Agriculture of Illinois stands greatly in need of building and equipment, necessary to enable the institution to attract the farmers' sons of the State now attending the agricultural colleges in other states, and

WHEREAS, Illinois can well afford to provide buildings and equipment that will place the Agricultural College of Illinois in a position where it will sustain a favorable comparison with like institutions in the states of Michigan, Wisconsin, Minnesota, Iowa, Ohio or Indiana; therefore be it

Resolved, That the Illinois Farmers' Institute request the hearty coöperation of the members of the County Farmers' Institutes of the State in the effort to secure from the General Assembly an appropriation sufficient to provide buildings and equipment for the Illinois College of Agriculture that will be in keeping with the demands of the farmers who wish to educate their sons in the studies pertaining to agriculture.

Resolved, That a committee of three be appointed to secure the coöperation of County Farmers' Institutes in the effort to secure ample appropriations to meet the necessities of the State Agricultural College in the way of buildings and equipment.

The chair designated the committee provided for in the above resolution to consist of Messrs. King, Grout and Mills.

On motion of Mr. Dunlap the board adjourned to meet in ten minutes in the rooms of the Illinois Farmers' Institute.

ROOMS ILLINOIS FARMERS' INSTITUTE.

The board met as per adjournment, with same attendance.

The minutes of the session of the executive committee held March 23, 1898; May 11, 1898; May 12, 1898; May 24, 1898; September 29, 1898, were read.

Motion of Mr. Grout adopted that the acts of the executive committee as set forth in the minutes of said meetings be approved and that the recommendations for the payment of the claims specified be concurred in and ordered paid.

Mr. Dunlap, as chairman of the committee on by-laws, submitted the following report:

RULES GOVERNING THE BOARD OF DIRECTORS, OFFICERS AND COMMITTEES OF THE ILLINOIS STATE FARMERS' INSTITUTE.

1. The board of directors shall meet as required by law; also in September and at time of the annual meeting of delegates. The president may call extra meetings of the board by giving five days notice thereof, or upon the written petition of ten members the secretary shall call a meeting.

2. Eleven members shall constitute a quorum for the transaction of business, except as otherwise provided in these rules.

3. These rules may be amended at any meeting by a majority of all the members constituting the board voting in the affirmative.

4. The officers shall consist of a president, vice president, secretary, treasurer, and State Superintendent of Farmers' Institutes. They shall be elected by ballot at the time and in the manner required by law, and must receive a majority of the votes cast for any one office.

5. The president shall preside at all meetings of the board of directors, appoint all committees unless otherwise provided by vote of the board. He shall be chairman of the executive committee and *ex-officio* member of all committees.

6. The vice president shall perform the duties usually devolving upon such officer.

7. The secretary shall attend all meetings of the board of directors and the executive committee, and keep a correct record of the same. He shall perform such other duties as usually devolve upon such officer. He shall act as secretary of the annual meeting of delegates and keep a record of same, and prepare the above records for publication within five days after the holding of the annual meeting of delegates.

8. The treasurer shall have charge of all funds and pay out same under the authority of the board of directors on warrants signed by the president and countersigned by the secretary. He shall, before entering upon the duties of his office, enter into a bond signed by not less than two sureties in such amount as the board of directors prescribe, not less than twice the amount likely to come into his possession at any one time. Said bond to be approved by the board, or a committee duly authorized by the board to approve the same.

9. The State Superintendent of Farmers' Institutes shall employ such speakers and institute workers as shall be approved by the board, or the executive committee. He shall have general supervision of the institute work of the State under the direction of the board and the executive committee.

He shall aid and coöperate with local committees of County Farmers' Institutes. He shall make a detailed report in writing to the board of directors at the time of the annual State meeting, following his election, of his acts and doings during the year, together with a general summary of institute work for that period. He shall answer all correspondents promptly, arrange for and assign speakers to county institutes when required.

10. An executive committee of five members shall be appointed by the president, of which he shall be chairman, when he enters upon the duties of his office, or as soon thereafter as possible. The duties of this committee shall be to conduct the affairs of the board of directors in the interval between the meetings of the board in accordance with the rules and resolutions adopted by said board. The executive committee shall have direction of and supervision of the annual report; shall employ a competent person to compile them for publication, and shall decide what matter shall enter into or be excluded from said report, and have full authority over their publication.

Shall audit bills for expenditures authorized by their board.

The executive committee is authorized to take action upon such matters as may not have been passed upon by the board, but in no instance is the committee authorized to rescind any action of the general board or to consider or pass upon such questions as have been decided adversely by said board.

11. County Farmers' Institutes shall be aided and encouraged in every way possible consistent with the law.

Upon application from the citizens of any county not having an organized institute such communications shall at once be referred to the director of the district in which such county is situated and he shall take such action as shall be necessary to organize an institute in accordance with law.

Upon proper application the Superintendent shall arrange to have one, and not more than two speakers, attend each County Institute. The expenses and per diem of such persons will be paid by the Board of Directors of the State Institute, when selected from the list of speakers, approved by this Board. Such speakers must in each instance be arranged for through the State Superintendent to entitle them to have their expenses paid by this Board. Bills for such expenses must be submitted by the Institute workers so employed to the President and Secretary of the County Institutes, and after receiving their approval, shall be forwarded to the State Superintendent who shall approve or disapprove the same; when such bills of expenses are approved, as provided for above, the President and Secretary are hereby authorized to draw warrants for same.

11½. The Directors of each district consisting of more than one county shall, as soon after his election as he considered advisable, call a meeting of the delegates from each County Institute at some central point for the purpose

of arranging for the time and place of holding the County Institute in the district. In counties where no County Institutes are organized, the Board of Supervisors shall be requested to appoint a delegate. Should the director in any district fail to call a meeting of delegates on or before September 1st, then and in that case the Superintendent is authorized to act.

An appropriation of not to exceed fifty dollars (\$50.00) is hereby made for paying the expenses of delegates to this meeting, one from each county. Bills to be approved by the Director and State Superintendent.

12. Salaries. The salary of the Secretary shall be \$300 per annum, payable quarterly.

The salary of the State Superintendent shall be \$600 per annum, payable quarterly.

The Secretary, or person having charge of the publication of the annual report under the direction of the Executive Committee shall receive as full compensation for all services connected therewith the sum of \$200.

The per diem of Institute workers employed by this Board shall not exceed \$5 per day for actual attendance upon Institute meetings.

13. In addition to the Executive Committee there shall be appointed at the beginning of each Institute year the following committees consisting of seven members each:

(1.) State Institute meeting. Committee—The duty of this committee will be to make all arrangements for the programme and exhibit at the State meeting of delegates, but not to decide where said meeting shall be held, unless authorized to do so by the Board.

(2.) To select speakers for County Institute—The duty of this committee will be to recommend to the Board for its approval, a list of speakers for County Institutes whose services and expenses shall be paid by this board when properly arranged for, as provided in these rules. The speakers shall be selected with reference to their ability to discuss one or more of the following topics, and it shall be the duty of this committee to select at least one person for each of said topics, viz.: Grain Farming, Feeding and Breeding, Dairy Husbandry, Orchard and Small Fruit Culture, Farmer's Gardens, Improved Highways, Domestic Science and Improvement of Farm Houses, Public Schools, and such other topics as may be decided upon.

Such list of speakers shall be submitted to the Executive Committee or Board of Directors not later than the meeting of the Board in September of each year.

(3.) A Legislative Committee, whose duty it shall be to suggest needed legislation, and when the same is approved by the Board, or by the annual meeting of delegates to bring the same in proper manner before the General Assembly of the State.

Reed's rules of order shall govern in all cases not otherwise provided for.

All rules and resolutions heretofore adopted are hereby repealed.

H. M. DUNLAP,
GEORGE W. DEAN,
F. C. ROSSITER,
A. P. GROUT,
Committee.

Motion adopted that the consideration of the report of the committee on by-laws be made the special order for tomorrow at 10 o'clock a. m.

Mr. Grout, as treasurer, presented the following statement showing receipts and expenditures of the Illinois Farmers' Institute from May 25, 1898, to September 26, 1898.

STATEMENT.

A. P. Grout, Treasurer Illinois Farmers' Institute.

RECEIPTS.		DISBURSEMENTS.	
May 25, T. W. Wilson, Treasurer.....	\$1,601 48	No. 221.....	\$399 94
June 1, ".....	7 50	No. 270.....	8 25
June 10, ".....	8 60	No. 279.....	20 00
Aug. 2, State Treasurer.....	7,500 00	No. 281.....	118 56
		No. 282.....	9 30
		No. 283.....	19 54
		No. 284.....	12 45
		No. 285.....	16 50
		No. 286.....	20 00
		No. 287.....	10 00
		No. 288.....	7 50
		No. 289.....	3 00
		No. 290.....	100 00
		No. 291L.....	13 00
		No. 293.....	100 00
		No. 294.....	100 00
		No. 296.....	100 00
		nce.....	8,414 64
1898.	\$9,112 58		
Sept. 25, To balance..	8,414 64		\$9,112 58

Motion of Mr. Mills adopted, that the reports of the treasurer be received and ordered placed on file.

On motion of Mr. Willmarth, the board adjourned to 9 o'clock a. m. tomorrow.

CHARLES F. MILLS,
Secretary.

MINUTES EXECUTIVE COMMITTEE.

OFFICE ILLINOIS FARMERS' INSTITUTE,
SPRINGFIELD, September 29, 1898,
THURSDAY, 8:30 O'CLOCK, A. M.

The Executive Committee met on the call of Chairman Moore.

Present, Messrs. Beal, Moore, Willmarth and Secretary Mills.

The minutes of the meetings of the Executive Committee, held May 11, 1898, and May 21, 1898, were read.

Motion of Mr. Willmarth adopted, that the matter of considering and acting upon the minutes be deferred until a full meeting of the Executive Committee.

On motion of Mr. Willmarth, the committee adjourned to meet at 4 o'clock this p. m.

AFTERNOON SESSION.

The Executive Committee met at 4 o'clock p. m. as per adjournment.

Present, Messrs. Beal, King, Moore, Willmarth and Secretary Mills.

The consideration of the minutes of the meetings of the Executive Committee, held May 11 and May 21, 1898, was taken up.

Mr. Willmarth moved to amend said minutes to show that the Executive Committee favorably considered the calling by the president of a meeting of the Board of Directors to be held during the week of the State fair of 1898.

Motion of Mr. King adopted that said minutes as amended be approved.

The committee proceeded to examine and approve claims, and adopted the following report, recommending for the favorable consideration of the board and order for payment of the bills specified, viz.:

To the Board of Directors, Illinois Farmers' Institute:

The undersigned members of the Executive Committee, having duly examined the claims of the parties named below, have approved the same and recommend that warrants in payment of said vouchers be drawn to the order of the respective claimants for the following amounts, viz.:

Treas'rer	Bond County Farmers' Institute.....	50 00
"	Menard County Farmers' Institute.....	50 00
"	Henderson County Farmers' Institute.....	19 00
"	Whiteside County Farmers' Institute.....	50 00
"	Clinton County Farmers' Institute.....	2 00
"	Washington County Farmers' Institute.....	3 50
"	St. Clair County Farmers' Institute.....	0 42
"	Marion County Farmers' Institute.....	2 50
"	Menard County Farmers' Institute.....	20 00
"	St. Clair County Farmers' Institute.....	4 00
"	Randolph County Farmers' Institute.....	4 00
"	Jasper County Farmers' Institute.....	50 00
"	Adams County Farmers' Institute.....	3 50
"	Schuyler County Farmers' Institute.....	3 00
"	McDonough County Farmers' Institute.....	3 00
"	Henderson County Farmers' Institute.....	5 78
"	Bond County Farmers' Institute.....	20 00
"	Williamson County Farmers' Institute.....	1 00
"	Pope County Farmers' Institute.....	5 72
"	Cumberland County Farmers' Institute.....	1 90
"	Lawrence County Farmers' Institute.....	3 91
"	Richland County Farmers' Institute.....	2 55
"	Clark County Farmers' Institute.....	4 97
"	Scott County Farmers' Institute.....	3 00
"	Green County Farmers' Institute.....	2 00
"	Cass County Farmers' Institute.....	1 40
"	Pike County Farmers' Institute.....	3 30
"	Macoupin County Farmers' Institute.....	3 00
"	Edgar County Farmers' Institute.....	5 43
"	Stark County Farmers' Institute.....	5 75
"	Rock Island County Farmers' Institute.....	4 00
"	Whiteside County Farmers' Institute.....	20 00
"	Henry County Farmers' Institute.....	4 00
"	Mercer County Farmers' Institute.....	2 22
"	Perry County Farmers' Institute.....	4 40
"	Hamilton County Farmers' Institute.....	3 13
"	White County Farmers' Institute.....	4 00
"	Franklin County Farmers' Institute.....	3 50
"	Wayne County Farmers' Institute.....	3 50
"	Edwards County Farmers' Institute.....	3 00
"	Director.....	9 75
"	Director.....	5 50
"	Director.....	5 42
"	as director.....	20 00
"	as director.....	31 25
"	as director.....	10 00
"	as director.....	5 25
"	Director.....	5 52
"	as director.....	12 45
"	Director.....	12 00
"	Director.....	10 00
"	by.....	4 00
"	by.....	4 00
"	company.....	5 00
"	printing.....	10 00

Illinois State Register Co., printing.....	116 30
Coe, Carter & Co., stationery	8 25
H. W. Rokker Co., shipping books.....	3 00
James P. Sarver, painting signs.....	3 00
Marshall, Field & Co., flag.....	7 75
St. Nicholas Hotel.....	22 00
Western Union Tel. Co.....	50
S. Noble King, expense as director.....	8 25
J. H. Coolidge, expense as director.....	8 50

Respectfully submitted,

AMOS F. MOORE,
L. N. BEAL,
G. A. WILMARTH,
S. NOBLE KING.

Mr. Willmarth reported that in compliance with instructions of the Executive Committee he had visited the 14th and 22nd Congressional districts and had organized two County Farmers' Institutes in the former and nine in the latter at an expense of \$65.06.

Motion of Mr. Beal adopted, that the report of Mr. Willmarth be received and approved, and orders for \$65.06 be recommended for the favorable consideration of the Board.

Adjourned to 7:30 o'clock this p. m.

CHARLES F. MILLS, *Secretary.*

EVENING SESSION.

The Executive Committee met at 7:30 o'clock p. m. as per adjournment.

Present, Beal, King, Moore, Willmarth and Secretary Mills.

The following resolution, introduced by Mr. Willmarth, was adopted:

In view of the fact that over \$12,000,000 are annually paid to foreign countries for the sugar which the people of Illinois consume, and

WHEREAS, It has been conclusively shown that the soil and the climate of the great State of Illinois are admirably adapted to the growth of the sugar beet, and

WHEREAS, It will open up a new and most promising and profitable field for the diversification of crops, and

WHEREAS, The surrounding states are offering bounties for the encouragement of this great and growing industry, and since capital will naturally be attracted to those states offering such inducement, therefore be it

Resolved, That it is the sense of the Executive Board of the Illinois Farmers' Institute that it would be advisable in order to bring the industry prominently before the farmers and manufacturers, for the State to offer a bounty of one cent per pound for all sugars of standard test manufactured from beets grown in Illinois, one half of said bounty going to the growers, the other one half to the manufacturers.

Therefore we would recommend that the directors of the Illinois Farmers' Institute instruct the Legislative Committee to use all honorable means to secure the passage of such a bill at the coming session of the Legislature.

Adjourned subject to the call of the Chair.

CHARLES F. MILLS,
Secretary.

ROOMS ILLINOIS FARMERS' INSTITUTE,
STATE HOUSE, September 30, 1898, 9 o'clock a. m.

The directors met as per adjournment.

President Moore in the chair.

Present, Messrs. Beal, Coolidge, Dunlap, Kimzey, King, Lindeman, Mann, Mills, Moore, Rossiter, Shank, Willmarth and Wilson.

The President presented the resignation of Mr. E. G. Uhlein as director of the Fifth Congressional District.

CHICAGO, ILLINOIS, March 7, 1898.

Amos F. Moore, Esq., President Illinois Farmers' Institute.

DEAR SIR:—Of late I have received a number of communications from which I learn that I am appointed or elected a Director of your institution.

I am sorry to say that I cannot act in that capacity as my business requires all of my personal attention.

Wishing you the best of success, I remain

Yours very respectfully,

EDWARD G. UHLEIN.

Mr. Rossiter moved that the resignation of Mr. Uhlein be accepted, division being called, seven voted for and two against, and the motion accepting the resignation was declared accepted.

Motion of Mr. Dunlap adopted, that the matter of selecting a successor to Mr. Uhlein be deferred until a suitable man can be agreed upon and presented by the directors of Cook county.

Attention was called to a letter from Mr. D. W. Prindle, director of the Twenty-second District, expressing a desire not to longer perform the duties as director of said district.

Motion of Mr. Willmarth adopted, that the letter of Mr. Prindle be received as a resignation and accepted as such.

VILLA RIDGE, ILLINOIS, April 3, 1898.

Hon. C. F. Mills, Springfield, Illinois.

MY DEAR SIR:—I have of late been in receipt of several communications from you, some of which came when I was too ill to reply, and some when I was too busy. I was greatly surprised to learn that I had been re-elected a director for this district, as I had not attended to the business pertaining to the position in a manner that was calculated to insure a continuance in office. There seems to be some sort of a misapprehension in regard to myself. I am a farmer that farms, I am alone as to any interested party to assist in the management of my business. I am engaged in growing early vegetables and fruit, a business that requires the most careful and persistent personal supervision of any branch of soil tilling. It commences in January and lasts until December, nearly, so you will see at once that for me to obey the beck and call of any authority that takes me from home more than two or three days at a time is simply impossible, except at a considerable personal sacrifice. I attended the meeting of directors at Springfield last fall, and my observation of the workings of the machine was not calculated to enthuse a wheelhorse, or beget the prophesy of a future of great usefulness for the institute.

There seemed to be a spirit of personal conflict in and about the management, that tended to send an everyday farmer home exclaiming, rats, rats! Those farmers, or rather that farmer representing the farming interests of those intensely agricultural districts embraced in Cook county, was a touching exhibition, and one long to be remembered.

I will do what I can to further the objects of the institute where I can with reasonable convenience, but I cannot go out now to organize anything but a crew of field hands, and it would be impossible to get a dozen farmers to leave home at this time to attend any sort of a meeting unless it was called for the purpose of licking Spain.

Yours truly,

D. W. PRINDLE.

Motion of Mr. Willmarth adopted.

That the consideration of filling the vacancy caused by the resignation of Mr. Prindle be postponed and that Mr. L. N. Beal be requested to confer with representatives of county institutes in the Twenty-second District in reference to a suitable man to fill the office of director.

The board then proceeded to the consideration of the report of the Committee on By-Laws, and after spending some time in discussing same, motion of Mr. Rossiter was adopted, that a meeting of the board be appointed for Monday, October 12, 1898, at 10 o'clock a. m., to act upon the report of the Committee on By-Laws.

President Moore then presented the Illinois Farmers' Institute a beautiful gavel with silver mountings and engraved inscription.

On motion of Mr. Wilson a vote of thanks was extended to President Moore which was emphasized by an unanimous rising vote.

Motion of Mr. Dunlap adopted, that the committee appointed to recommend speakers for county institutes be requested to submit a list of speakers to the board at the earliest possible date.

Motion of Mr. Mills adopted, that 300 copies of the 1898 report of the Illinois Farmers' Institute be apportioned to each Congressional District outside of Cook county, and that said reports be shipped by the secretary on the orders of the respective directors.

Motion of Mr. Willmarth adopted that \$1,000, or so much thereof as may be necessary, is hereby appropriated and made available for the payment of such expenditures of the Board, as may be approved by the Executive Committee.

On motion of Mr. Willmarth, the Board adjourned to October 17, 1898, at 10:30 o'clock A. M.

CHARLES F. MILLS,
Secretary.

OFFICE ILLINOIS FARMERS' INSTITUTE,
SPRINGFIELD, ILL., Sept. 30, 1898.
Friday, 10:30 O'clock A. M.

The Executive Committee met on the call of Chairman Moore.

Present: Messrs. Beal, Moore, Willmarth and Secretary Mills.

The committee proceeded to examine and approve claims, and adopted the following report, recommending for the favorable consideration of the Board, and order for payment of the bills specified, viz.:

To the Board of Directors, Illinois Farmers' Institute:

The undersigned members of the Executive Committee, having duly examined the claims of the parties named below, have approved the same and recommend that warrants in payment of said vouchers be drawn to the order of the respective claimants for the following amounts, viz.:

nty Farmers' Institute.....	33.34
as Director.....	16.36
ense as Director.....	17.75
as Director.....	14.40
nse as Director.....	17.50
se as Director.....	10.75
nse as Director.....	7.86
xpense as Director.....	37.10
xpense as Director.....	25.33
se as Director.....	7.00
as Director.....	19.71
ices as Secretary, August, 1898.....	100.00
ices as Secretary, September, 1898.....	100.00
ense as Director.....	18.50
ense as Director.....	3.55
.....	17.50

Respectfully submitted,

AMOS F. MOORE,
G. A. WILLMARTH,
L. N. BEAL.

The Committee adjourned subject to the call of the chair.

CHARLES F. MILLS,
Secretary.

ROOMS ILLINOIS FARMERS' INSTITUTE,
SPRINGFIELD, ILL., Oct. 17, 1898,
10:00 O'clock A. M.

The Board of Directors met as per adjournment.

President Moore in the chair.

Present: Messrs. Beal, Dean, Davenport, Dolton, Dunlap, Grout, Kimzey, Lindeman, Mann, Mills, Moore, Periam, Rossiter, Shank, Willmarth, and Wilson.

The minutes of the meetings of the Board held Sept. 29-30, 1898, were read, and on motion approved.

The minutes of the meetings of the Executive Committee held Sept. 29-30, 1898, were read, and on motion the acts of the Executive Committee as therein set forth, were approved and the claims recommended for payment, were ordered paid.

Motion of Mr. Dunlap, adopted that the Board proceed to the consideration of the report of the committee on by-laws.

Motion of Mr. Willmarth, adopted that the by-laws be read and considered by section.

The by-laws were then read and adopted by section, and amended to read as follows:

BY-LAWS OF ILLINOIS FARMERS' INSTITUTE.

SECTION 1. The Board of Directors shall meet as required by law; also in June of each year and at the time of the annual meetings of the delegates. The President may call extra meetings of the Board by giving ten days' notice thereof, or upon the written petition of ten members, the Secretary shall call a meeting.

SEC. 2. Eleven members shall constitute a quorum for the transaction of business, except as otherwise provided for in these rules.

SEC. 3. These rules may be amended at any meeting by a majority of all members constituting the Board, voting in the affirmative.

SEC. 4. The officers of the Board shall consist of a President, Vice-President, Secretary and Treasurer and State Superintendent of Farmers' Institutes. Said officers shall be elected by ballot at the time and in the manner prescribed by law, and must receive a majority of the votes cast for any officer.

SEC. 5. The President shall preside at all meetings of the Board of Directors, appoint all committees, unless otherwise provided by vote of the board. He shall be chairman of the Executive Committee and ex-officio a member of all standing committees.

SEC. 6. The Vice-President shall perform the duties usually devolving upon such officer.

SEC. 7. The Secretary shall attend all meetings of the Board of Directors and the Executive Committee, and keep a correct record of the same. He shall perform such other duties as usually devolve upon such officer. He shall act as Secretary of the annual meeting of delegates and keep a record of the same and prepare said record for publication within five days after the holding of the annual meeting of delegates.

SEC. 8. The treasurer shall have charge of all funds and pay out same under the authority of the Board of Directors on warrants signed by the President and countersigned by the Secretary. He shall before entering upon the duties of his office, enter into a bond signed by not less than two sureties, in such amount as the Board of Directors prescribe, not less than twice the amount likely to come into his possession at any one time. Said bond to be approved by the board or committee duly authorized by the board to approve same.

SEC. 9. The State Superintendent of Farmers' Institutes shall employ such speakers and institute workers as shall be approved by the Board or Executive Committee. He shall have general supervision of the institute work of the State under the direction of the Board and Executive Committee and assign speakers to county institutes upon the application of the respective directors. He shall aid and coöperate with the directors of the Illinois Farmers' Institute of the several districts. He shall make a detailed report in writing to the Board of Directors, at the time of the Annual State Meeting following his election, of his acts and doings during the year, together with a general summary of the institute work of the State for that period. He shall answer all correspondence promptly, arrange for and assign speakers to County Farmers' Institutes upon the application of the respective directors. He shall have charge of the publication of the annual report under the direction of the Executive Committee.

Adjourned to 1:30 o'clock p. m.

AFTERNOON SESSION,

The Board of Directors met as per adjournment at 1:30 o'clock p. m.

President Moore in the chair.

Present, Messrs. Beal, Coolidge, Davenport, Dean, Dolton, Grout, Kimzey, King, Lindeman, Mann, Mills, Moore, Periam, Rossiter, Shank, Willmarth and Wilson.

The board resumed the consideration of the report of the committee on by-laws, which was read and considered by section and amended to read as follows:

SEC. 10. An Executive Committee of five members shall be appointed by the President, of which he shall be chairman, when he enters upon the duties of his office, or as soon thereafter as possible. The duties of this committee shall be to conduct the affairs of the Board of Directors, in the interval between the meetings of the board, in accordance with the rules and resolutions adopted by said board. The Executive Committee shall have direction of, and supervision of, the annual reports, and shall decide what matter shall enter into or be excluded from said report, and have full authority over their publication. Shall audit bills for expenditures authorized by the board.

SEC. 11. The director of each district consisting of more than one county, shall within sixty days after his election, call a meeting of the delegates from each County Institute in his district at some central point, for the purpose of arranging for the time and place of holding the next County Institute in the district. In counties where no County Farmers' Institute is organized, the county board shall be requested to appoint a delegate. All necessary traveling expenses of one delegate from each county while in attendance at said Congressional Conference, to be paid by the Illinois Farmers' Institute, upon itemized bills approved by the Director of said district.

SEC. 12. Article 1—Salaries. The salary of the Secretary shall be \$300 per annum payable monthly. Article 2. The salary of the State Superintendent shall be \$1,200 per annum payable monthly, said salary to cover all clerical expenses including stenographer.

Mr. Dolton demanded the yeas and nays upon the adoption of section 12 of the by-laws, prescribing the salaries of the Secretary and Superintendent, said section having been amended to read as above.

The yeas and nays were ordered.

The question was taken and there were yeas 13, nays 2, not voting 1; as follows:

Yeas—Beal, Davenport, Dean, Dolton, Grout, Kimzey, King, Mann, Mills, Moore, Periam, Rossiter and Shank—13.

Nays—Willmarth and Wilson—2.

Not voting—Lindemann—1.

So Section 12 amended to read as above was agreed to.

SEC. 13. In addition to the Executive Committee there shall be appointed at the beginning of each institute year the following committees, consisting of five members each:

ARTICLE 1. State Institute Meeting Committee. The duty of this committee will be to make all arrangements for the program and exhibit at the State meeting of delegates, but not to decide where said meeting shall be held unless authorized so to do by the board.

ART. 2. Committee to Select Speakers for County Institutes. The duty of this committee will be to recommend to the board for its approval a list of speakers for county institutes, whose services and expenses shall be paid by this board when properly arranged for, as provided in these rules. The speakers shall be selected with reference to their ability to discuss one or more of the following topics, and it shall be the duty of this committee to select at least one person for each of said topics, viz.: Grain farming, stock feeding and breeding, dairy husbandry, orchard and small fruit culture; farmer's garden, improved highways, domestic science and improvement of farm homes, public schools, and such other topics as may be decided upon. Such list of speakers shall be submitted to the Executive Committee or Board of Directors not later than the meeting of the board in June of each year.

ART. 3. A Legislative Committee whose duty it shall be to suggest needed legislation, and when the same is approved by the board, to bring the same in proper manner before the General Assembly of the State.

SEC. 14. Reed's Rules of Order shall govern in all cases not otherwise provided for.

Motion of Mr. Lindeman adopted, that all rules and resolutions heretofore adopted and in conflict with the by-laws considered this day be and are hereby repealed.

Motion of Mr. Davenport adopted, that the by-laws as amended this day and as stated above take effect from and after this date.

Mr. Willmarth moved that the salaries of the secretary and superintendent of institutes as provided for in Section 12 of the by-laws, be paid from and after the date of the next annual meeting of the board, and that said section become operative and take effect from and after said meeting. Mr. Mann moved that the motion of Mr. Willmarth be laid on the table.

Mr. Moore demanded the yeas and nays on the motion of Mr. Mann to lay the motion of Mr. Willmarth on the table.

The yeas and nays were ordered.

The question was taken and there were yeas 14, nays 0, not voting 1, as follows:

Yeas—Beal, Davenport, Dean, Grout, Kimzey, King, Mann, Mills, Moore, Periam, Rossiter, Shank, Wilson and Willmarth.

Not voting—Lindemann.

So the motion of Mr. Mann to lay the motion of Mr. Willmarth on the table was agreed to.

President Moore announced the appointment of the following committees to serve until the next annual meeting of the board.

Executive—Moore, Beal, Dolton, King and Willmarth.

Legislative—Grout, Dunlap, Dean, Dolton, King, Mills and Moore.

Program State Institute Meeting—Mills, Davenport, Freeman, Rossiter, and Moore.

Exhibit State Institute Meeting—Beal, Gurler, Dunlap, Shank and Moore.

Speakers County Institute Meeting—Dean, Dunlap, Davenport, Mills and Moore.

Systemizing and Organizing County Institutes—Wilson, Prindle, Stewart, Steenberg, Moore and Sawyer.

Special Features for the Improvement of County Institutes—Kimzey, Bartlett, Coolidge, Lindemann, Mann, Periam, Pierce and Moore.

Library—Willmarth, Beal, Davenport, Periam and Mills.

Mr. Mills moved that \$500 or so much thereof as may be required by the committee having charge of the exhibit at the State Institute, be appropriated for prizes for said exhibit at the Princeton meeting and that said fund be subject to the classification of said standing committee on exhibits.

Mr. Wilson demanded the yeas and nays.

The yeas and nays were ordered.

The question was taken and there were yeas 12, nays 3, not voting 1, as follows:

Yeas—Beal, Davenport, Dean, Kimzey, King, Mann, Mills, Moore, Periam, Rossiter, Shank and Willmarth—12.

Nays—Dolton, Grout and Wilson—3.

Not voting—Lindemann—1.

So the motion of Mr. Mills was agreed to.

Mr. Dolton moved that one half day of the next State Institute meeting, or such portion of said time as may be necessary, be set apart by the Program Committee for receiving reports from the representatives of county institutes as to the condition of the Farmers' Institute work in their respective counties.

Mr. Mills moved to amend by providing that said reports of county institutes be submitted in writing.

Motion of Mr. Dolton, as amended, adopted.

Mr. Lindemann introduced the following resolution and moved its adoption, viz:

That the secretary make type-written or mimeograph copies of the minutes of meetings of this board and its Executive Committee as held, and mail a copy thereof to each member of this board within five days after such meetings are held.

On motion of Mr. King the resolution of Mr. Lindemann was laid on the table.

The Committee on Speakers submitted the following report and list of speakers, which was amended by the addition of names of speakers, and on motion of Mr. King the report and list were adopted as follows:

REPORT OF COMMITTEE ON SPEAKERS.

To the Illinois Farmers' Institute:

The undersigned committee appointed to recommend speakers for county institutes beg leave to report, that they have considered the names of the parties presented for such service by the officers of county institutes, the directors of this board and others, and beg leave to submit the following list of speakers and topics for the further consideration of the board of directors.

Respectfully submitted,

G. W. DEAN,
H. M. DUNLAP,
CHARLES F. MILLS,
E. DAVENPORT.

COUNTY INSTITUTE SPEAKERS.

The speakers whose names appear on the following list have been recommended to the Illinois Farmers' Institute by the officers of County Farmers' Institutes and others with reference to their ability to discuss one or more of the following topics, viz: Grain Farming, Stock Feeding and Breeding, Dairy Husbandry, Orchard and Small Fruit Culture, Farmer's Garden, Farm Drainage, Improved Highways, Domestic Science, Improvement of Farm Homes and General Farm Management:

Agricultural Education.—John P. Steel, Dalgren; W. H. Burke, Chicago; J. H. Freeman, Springfield; David Ward Wood, Chicago; G. A. Willmarth, Seneca; H. F. Thurston, Chicago; Henry Miner, Winchester; S. T. Maxcy, Mt. Vernon.

The Ideal Farmer.—David Ward Wood, Chicago.

The Farmer as a Citizen.—J. M. Hollingsworth, Ridge Farm.

Women on the Farm.—Mrs. H. J. Westlake, Pittsfield.

The Farmer's Son.—J. W. Madison, Plainville; G. W. Dean, Adams, Dwight Herrick, Rochelle.

Farm Fences.—L. H. Coleman, Springfield.

Tile Drainage.—S. T. K. Prine, Dwight.

The Farmer's Daughter.—Mrs. L. G. Chapman, Freedom.

How to Keep the Old Man on the Farm.—Joseph Carter, Champaign.

Dignity of Farm Labor.—David Ward Wood, Chicago.

Farming as a Business.—Dwight Herrick, Rochelle.

Fireside Philosophy.—Mrs. E. L. Gleason, Mendota.

The Farm Home.—Mrs. E. L. Gleason, Mendota; Mrs. H. J. Westlake, Pittsfield; Mrs. L. L. Bedell, Holder; Miss Chittenden, Mendon; Mrs. L. N. Beal, Mt. Vernon; Mrs. L. G. Chapman, Freedom.

Irish Potato Culture.—E. A. Reihl, Alton.

Horticulture and Fruits for the Farm.—Henry Augustine, Normal; L. N. Beal, Mt. Vernon; Clarence C. Mills, Decatur.

Domestic Economy.—Mrs. L. L. Bedell Holder; Mrs. Nellie S. Kedzie, Peoria; Mrs. I. S. Raymond, Sidney; Miss Helen Reihl, Alton; Miss Laura Patterson, Belleville; Mrs. Alice Lloyd, Glen Ellyn; Mrs. H. M. Dunlap, Savoy; Mrs. S. Noble King, Bloomington; Mrs. Jane Carter, Champaign.

Country Roads.—A. C. Baldwin, Deer Park; D. W. Smith Springfield; S. T. K. Prine, Dwight.

Rural Mail Delivery.—J. W. Madison, Plainville; John M. Stahl, Chicago; B. F. Workman, Auburn.

Success on the Farm.—Fred H. Rankin, Athens.

Mutual Farm Insurance.—David Brumback, Danforth; Milton George, Chicago; Charles F. Mills, Springfield; J. E. Seller, Mt. Carmel; J. H. Alexander, Lockport; W. B. Rundle, Clinton.

Farm Crops; Clover as Feed and Fertilizer.—Joseph Carter, Champaign; J. M. Hollingsworth, Ridge Farm; D. W. Vittum, Canton; Fred H. Rankin, Athens; C. C. Pervier, Sheffield.

Corn Culture.—J. H. Beagley, Sibley; Geo. W. Dean, Adams; H. M. Dunlap, Savoy; A. F. Moore, Polo; E. A. Reihl, Alton; W. A. Young, Butler; C. G. Winn, Griggsville; H. L. Doan, Jacksonville; W. B. Otwell, Carlinville; L. H. Calloway, Bethel; H. R. Cotta, Freeport; F. L. Williams, Tamaroa; L. R. Bryant, Princeton; Arthur Bryant, Princeton; A. H. Aldrich, Neoga; J. W. Stanton, Richview; Dwight Herrick, Rochelle.

The Farmer's Garden.—Miller Purvis, Chicago; Dwight Herrick, Rochelle.

Harvesting and Feeding Forage Crops.—S. Noble King, Bloomington; Ed. Oltman, Dundee.

Grain and Stock Growing.—D. P. McCracken, Paxton.

Specialties in Farming.—B. F. Wyman, Sycamore.

Rotation of Crops.—E. A. Giller, White Hall; Joseph Miller, Wenona, J. M. Thompson, Joliet; J. M. Hollingsworth, Ridge Farm.

Moving Crops.—S. T. K. Prine, Dwight.

Live Stock, Horses.—T. J. Berry, Chicago; J. S. Cooper, Chicago; Wm Pritchard, Ottawa; Stuart Brown, Springfield; H. K. Smith, Mt. Palatine

Wheat Culture:—Fred Helms, Belleville; S. N. Black, Clayton; T. Butterworth, Chicago; W. R. Goodwin, Chicago.

Cattle.—L. H. Kerrick, Bloomington.

Donald McIntosh, Professor of Veterinary Science, Subject:—Disease of Farm Animals.

P. G. Holden, Assistant Professor of Agricultural Physics, Subjects:—The Sugar Beet Industry for Illinois; Pure Food Legislation Needed for Illinois; Small Things in Agriculture; Success on the Farm; Corn Cultivation Experiments at University of Illinois.

J. C. Blair, Assistant Professor of Horticulture, Subjects:—Horticulture for the Farm; Orchard Cultivation; Spraying; The Horticultural Interests in Illinois.

W. J. Fraser, Assistant in Dairying, Subject:—Production of Pure Milk.

G. P. Clinton, Assistant Botanist, Experiment Station, Subjects:—The Smut Fungus of Agricultural Plants; Some of the More Important Fungus Foes of Horticultural Plants; Illinois Weeds.

A. W. Palmer, Professor of Chemistry, Subject:—Drinking Waters.

C. G. Hopkins, Experiment Station Chemist, Subjects:—Common Chemistry of Farm and Kitchen, (illustrated by experiments); The Elements of Soil Fertility.

H. S. Grindley, Assistant Professor of Chemistry, Subject:—Foods—Their Nutritive Value and Cost.

List of graduates and students of the Agricultural Course.

A. C. Beal, Class of 1897, Subjects:—Small Fruits; Harvesting and Marketing Small Fruits.

A. D. Shamel, Class of 1898, Subject:—An Experiment in Corn Cultivation.

L. D. Hall, Class of 1899, Subject:—An Experiment in Pig Feeding.

E. T. Robbins, Class of 1899, Subject:—Common Reversions to Unimproved Characters Among Domestic Animals.

J. A. Latzer, Class of 1899, Subject:—Bacteria and Their Relations to Agriculture.

T. Ralph Miner, Class of 1900, Subject:—The Advantages of Humus in Agricultural Soils.

John E. Raymond, Class of 1900, Subject:—Need of an Agricultural Survey of Illinois.

Motion of Mr. Mills adopted, that Mr. Moore be added to the committee appointed to assist in securing an appropriation from the next General Assembly for the erection of a suitable building for the State Agricultural College at Champaign.

Mr. Rossiter reported that the Directors representing the Congressional districts in Cook county united in recommending Mr. James Frake, 132 LaSalle street, Chicago, as Director of the Fifth Congressional district, to succeed Mr. E. G. Uhlein, resigned.

Mr. Frake was nominated by Mr. Rossiter as Director for the Fifth Congressional district, and on motion for Mr. Kimzey was unanimously elected Director for said district.

Motion of Mr. Beal adopted, that the Secretary send a supply of Volumes 1 and 2 of the reports of the Illinois Farmers' Institute to the Secretaries of County Institutes in the Twenty-second Congressional district.

Motion of Mr. Kimzey adopted, that the Secretary send to the officers of County Institutes and other interested parties at the earliest possible date a list of the speakers, approved by the Board, for service at County Farmers' Institute meetings.

Motion of Mr. Mills adopted, that the Executive Committee be requested to have printed in connection with the pamphlet containing the list of County Institute speakers such papers and suggestions as will be helpful to the officers and committees of County Farmers' Institutes in the prosecution of the work.

Motion of Mr. Beal adopted, that the Secretary send to each member of the Board of Directors a copy of the by-laws adopted at this meeting.

Mr. Kimzey introduced the following resolution, and on his motion the same was adopted, viz:

Resolved, That the amount appropriated by the board to assist in defraying the expenses of holding the congressional "round up meetings" be increased to not exceed \$70.00 for each Congressional District Institute meeting in lieu of \$50.00 heretofore appropriated.

Motion of Mr. Mills adopted that the matter of printing and distributing the program of the next annual meeting of the Illinois Farmers' Institute, the employing of a stenographer for said meeting and other matters in connection therewith and not heretofore provided for, be referred to the executive committee with power to act.

Motion by Mr. Periam adopted that \$500.00 or so much thereof as may be deemed necessary by the executive committee is hereby appropriated and made available for the use of said committee in the payment of the expenses of the annual meeting, viz: printing and mailing program, advertising, stenographer, etc.

Motion of Mr. Kimzey adopted that three thousand dollars or so much thereof as may be necessary is hereby appropriated and made available for the use of the executive committee in providing for the payment of the appropriation of \$20.00 made for speakers for each County Institute, and \$70.00 voted for the expenses of the congressional district round-up meetings to be held under the auspices of County Farmers' Institutes, provided that \$70.00 in lieu of the \$20.00 be authorized only in counties where the round-up meetings are held in connection with County Institutes.

On motion of Mr. King the board adjourned subject to the call of the president.

CHARLES F. MILLS, *Secretary*.

ROOMS ILLINOIS FARMERS' INSTITUTE,

SPRINGFIELD, October 18, 1898, 8 O'clock a. m.

The executive committee met on the call of Chairman Moore.

Called to order by President Moore.

Present Messrs. Beal, Dolton, King, Moore, Willmarth and Secretary Mills.

Motion of Mr. Willmarth adopted, that it is the sense of the executive committee that no per diem should be paid speakers for addressing County or Congressional District Farmers' Institute meetings.

Mr. Willmarth moved that 2,000 copies of the list of County Institute speakers be printed and sent to the officers of County Institutes. Mr. Willmarth called to the chair.

Mr. Moore moved to amend by having a pamphlet printed containing the papers read at the Institute Parliament held in the State House September 28, 1898, and that the list of County Institute speakers, time and place of County and District Institute meetings be published in connection with said papers.

The ayes and nays being called for, Messrs. Beal, King and Moore voted for the amendment and Messrs. Dolton and Willmarth against the amendment, and the motion as amended, was declared adopted.

Mr. Moore moved that eight thousand copies of the pamphlet containing said papers and list of speakers be printed.

Mr. Willmarth moved to amend by making the number 2,000.

The ayes and nays being called for, Messrs. King and Willmarth voted for the amendment and Messrs. Beal and Moore against the amendment, which was declared lost, not having received a majority of the members present.

The motion of Mr. Moore was then adopted for the printing of eight thousand copies.

The following report of the committee on claims was then adopted and the same recommended to the board for payment.

To the Board of Directors Illinois Farmers' Institute:

The undersigned members of the executive committee having duly examined the claims of the parties named below, have approved the same and recommend that warrants in payment of said vouchers be drawn to the order of the respective claimants for the following amounts, viz:

F. I. Mann, expense as director.....	\$10 72
F. C. Rossiter, expense as director.....	15 65
G. W. Dean, expense as director.....	16 83
A. F. Moore, expense as director.....	16 54
J. Periam, expense as director.....	8 50
Charles F. Mills, expense as director.....	8 79
S. N. King, expense as director.....	6 65
Charles H. Dolton, expense as director.....	9 65
E. Davenport, expense as director.....	10 60
H. M. Dunlap, expense as director.....	2 75
A. P. Grout, expense as director.....	7 25
Oliver Wilson, expense as director.....	11 15
Oliver Wilson, expense as director.....	11 78
L. M. Beal, expense as director.....	6 67
D. H. Shank, expense as director.....	18 00
L. N. Beal, expense as director.....	16 60
W. R. Kimzey, expense as director.....	17 74
Charles F. Mills, services as secretary.....	112 50
Beardsley Hotel, Champaign.....	5 00
Treasurer Sangamon County Farmers' Institute.....	50 00
Treasurer Sangamon County Farmers' Institute.....	6 20
United Express Company, expressage.....	1 02
American Express Company, expressage.....	9 87
United Express Company, expressage.....	14 55
Charles J. Lindemann, expense as director.....	19 25
Phillips Bros., Electros Annual report.....	39 60
G. A. Willmarth, expense as director.....	18 50
G. A. Willmarth, expense as director.....	4 50
Adams Express Company.....	5 10

Respectfully submitted,

AMOS F. MOORE,
L. N. BEAL,
G. A. WILLMARTH.

On motion a meeting of the executive committee was appointed to be held at the Plumb House, Streator, January 26, 1899.

Adjourned to meet at Mt. Vernon November 18, 1898.

MT. VERNON, ILLINOIS, Nov. 18, 1898.

The executive committee met as per adjournment. Called to order by Mr. Willmarth, who was made chairman *pro tem*.

Present Messrs. Beal, King, Willmarth and Secretary Mills.

The committee proceeded to consideration of certain claims enumerated on the following report, which was adopted with recommendation for the favorable consideration of the board of directors, viz:

To the Board of Directors Illinois Farmers' Institute:

The undersigned members of the executive committee, having duly examined the claims of the parties named below, have approved the same and recommend that warrants in payment of said vouchers be drawn to the order of the respective claimants for the following amounts, viz:

S. N. King, expense executive committee.....	\$14 16
G. A. Willmarth, expense executive committee.....	9 25
Charles F. Mills, expense as superintendent.....	18 30
United States Express Company.....	11 76
American Express Company.....	29 30
Adams Express Company.....	7 37
Salary Secretary, November, 1898.....	25 00
Salary Superintendent, November, 1898.....	100 00
Talbott & Hammann, 8,000 list speakers.....	116 90
Illinois State Register, printing envelopes, etc.....	25 00
J. F. Mahaff, board executive committee.....	7 50
G. A. Willmarth, expense executive committee.....	24 00
Treasurer Knox County Farmers' Institute.....	50 00
.. Coles County Farmers' Institute.....	50 00
.. Coles County Farmers' Institute.....	20 00
.. Pope County Farmers' Institute.....	20 00
United States Express Company.....	6 15

Respectfully submitted,

G. A. WILLMARTH,
L. N. BEAL,
S. NOBLE KING.

Motion of Mr. Beal adopted, that the officers of County Farmers' Institutes be requested to appoint a vice-president for each township in the several counties, and that said vice-president be assisted and encouraged to hold a Township Farmers' Institute of one day's session, the first half day of said session to be devoted to the discussion of topics of especial interest to men, pertaining to the agricultural interests of the township. The afternoon session to be set apart to the ladies for the discussion of topics relating to home-making, and the evening session to be devoted to the youth for literary and musical exercises.

A communication from Mr. E. S. Fursman, of El Paso, Ill., was read in reference to the holding of a Corn Show in connection with the annual meeting of the Illinois Farmers' Institute.

On motion Mr. Fursman was invited to meet with the Executive Committee at Carlinville, December 21, 1898, to explain the plan of holding the proposed Corn Show.

The following communication from Gaul, Wermich & Seibert, of Chicago, was read:

CHICAGO, October 31, 1898.

Mr. Charles F. Mills.

DEAR SIR:—We learn that the Illinois Farmers' Institute of which you are the Secretary, will hold their annual convention at Princeton, February 21-23, 1899.

We would like to make a proposition to the Association, through you, to print for them a handsome souvenir edition of the convention, containing half-tone cuts of the officers, list of committees, proceedings of the convention, advertisements, etc., which we will furnish free to the advertisers and members, and will also pay to the Association ten per cent of the amount of advertising we receive.

Will you kindly place the above proposition before the committee in charge and let us know their decision at your earliest possible convenience, and oblige.

Yours very truly,

GAUL, WERMICH & SEIBERT.

On motion the proposition of Gaul, Wermich & Seibert was referred to a committee consisting of Messrs. Willmarth, King and Mills, who were instructed to visit said firm and, if deemed advisable, enter into such a contract for the publishing of the program of the annual Institute as may be deemed for the best interest of the State Institute.

Motion adopted that Messrs. Willmarth and Mills be appointed a committee to organize a County Farmers' Institute in Kane county,

Motion adopted that the Secretary print for each Director filing copy therefor 1,000 copies of the program of their respective Congressional District Institute meetings.

Motion adopted that the Secretary have printed letter heads for Directors as ordered by the several Directors.

The form of report for County Institutes was adopted as follows:

Report of.....County Farmers Institute.
For meeting held at.....on.....day of.....189

State of Illinois, }
.....County, } ss.

.....President, and.....
Secretary of the.....County Farmers' Institute, State of Illinois, being duly sworn, each upon his oath states that the annual public sessions of theCounty Farmers' Institute, of not less than two days each, were duly advertised and held at.....in said county, on the.....and.....day of.....189....for the purpose of developing a greater interest in the cultivation of crops, in the breeding and care of domestic animals, in dairy husbandry, in horticulture, in farm drainage, in improved highways and general farm management, through and by means of liberal discussions of these and kindred subjects, and for the publication and distribution of the papers and proceedings of said Institute. That no officer of said Institute has or will receive any moneyed compensation whatever for any services rendered the Institute. That the printed program and proceedings hereto attached, and made a part of this affidavit, is a true and correct copy of the printed proceedings of said.....County Farmers' Institute held on the dates above named, showing the titles of papers read, and by whom, and also by whom discussed. We further state that the daily average attendance at the sessions of said Institute was.....persons. That the following is a true and correct itemized statement of all expenses incurred in arranging for and holding the meetings of said institute, and that all of said expenses are covered by the receipted vouchers attached thereto.

[illegible]

We further state that the above named County Farmers' Institute is the only organized County Institute in said county, organized for the purpose above named, and is therefore the only institute entitled to the benefits of "An act making appropriations for the Illinois Farmers' Institute and County Farmers' Institute, approved June 5, 1897," and that the next meeting of the Institute for this county will be held at..... on..... day of....., 1899.

Subscribed and sworn to before me this day of....., 189.....

• • • • •

Notary Public.

.....*President.*

..... *Secretary.*

....., ILL.,, 189....

I hereby certify that the following named were elected to fill the respective offices during the ensuing year:

President.....Address
 SecretaryAddress.....
 Treasurer.....Address.....
Secretary.

PRINTED PROCEEDINGS.

The "Act making appropriations for the Illinois Farmers' Institutes and County Farmers' Institutes," provides that each County Farmers' Institute shall file with the Secretary of the Illinois Farmers' Institute the printed proceedings showing title of papers read, etc.

In case the proceedings of the County Institute meetings specified on the first page of this report have been printed in pamphlet form, said proceedings should accompany this report, otherwise slips from the papers containing such printed proceeding should be (*) attached.

ANNUAL REPORT

OF

.....County

FARMERS' INSTITUTE.

For meeting held at.....	.....
on.....day of.....189....	.....
Filed this.....day of.....189....	.....
.....	Secretary.
(Index.)—This report should be mailed to Charles F. Mills, Secretary Illinois Farmers' Institute, Springfield, Illinois.	

INSTITUTE PROGRAMME.

The "Act making appropriations for the Illinois Farmers' Institute and County Farmers' Institutes," provides that each County Farmers' Institute shall file with the Secretary of the Illinois Farmers' Institute a copy of the program of its meeting.

The program of the County Institute Meeting specified on the first page of this report should be (†) attached hereto.

On motion the committee adjourned to meet at Carlinville, Dec. 21, 1898.

Attach the clippings from papers containing the proceedings referred to above on the blank space on pages 2 and 3 of this report, and give date and name of the paper containing same.

†Attach the printed programme of the meeting referred to on above blank space.

ROOMS ILLINOIS FARMERS' INSTITUTE,

SPRINGFIELD, ILL., Dec, 29, 1898,

10:30 O'clock A. M.

The Executive Committee met on the call of Chairman Moore.

Present: Messrs. Beal, King, Moore, and Secretary Mills.

A communication from George H. Gordon, of Paris, was read in reference to misplacing a check of \$4.57 drawn on former Treasurer, which was not presented to the bank where payable until after the election of the present Treasurer.

Motion adopted that a duplicate check be drawn for said amount and sent to Mr. Gordon.

The application of Mr. O. W. Barnard, of Manteno, for permission to hold a County Institute meeting in Kankakee county, was considered.

Inasmuch as the old County Farmers' Institute organization for said county has failed to hold a meeting since 1894, and the President has declined to make preparation for holding a meeting this season, the petition of Mr. Barnard was favorably considered, and on motion he was requested to organize and hold a County Institute meeting in said county.

The committee then proceeded to examine claims and adopted the following report recommending for payment the amounts to the parties named thereon, viz.

To the Board of Directors of the Illinois Farmers' Institute:

The undersigned members of the Executive Committee having duly examined the claims of the parties named below, have approved the same, and recommend that warrants in payment of said vouchers be drawn to the order of the respective claimants for the following amounts, viz:

Treasurer	.....	\$50 00
"	.....	20 00
"	.....	50 00
"	.....	20 00
"	.....	50 00
"	e.....	50 00
"	u.....	15 00
"	.....	20 00
"	.....	50 00
"	.....	20 00
"	.....	8 30
"	.....	50 00
"	.....	20 00
"	.....	50 00
"	.....	20 00
"	.....	50 00
"	.....	20 00
"	.....	50 00
"	.....	20 00
"	e.....	41 46
"	.....	50 00
"	long. (nat)	70 00
"	.....	50 00
"	.....	15 00
"	ng (nat)	70 00
"	.....	50 00
"	.....	20 00
"	.....	50 00
"	.....	20 00
"	.....	50 00
"	.....	20 00

Treasurer Hancock County Farmers' Institute.....	31 45
.. Brown County Farmers' Institute.....	28 25
.. Wayne County Farmers' Institute.....	50 00
.. Wayne County Farmers' Institute.....	20 00
.. Clay County Farmers' Institute.....	50 00
.. Clay County Farmers' Institute.....	20 00
.. Jefferson County Farmers' Institute.....	50 00
.. Jefferson County Farmers' Institute (Cong. Inst.).....	70 00
.. Macoupin County Farmers' Institute.....	50 00
.. Macoupin County Farmers' Institute (Cong. Inst.).....	70 00
.. Hamilton County Farmers' Institute.....	47 93
.. Montgomery County Farmers' Institute.....	25 00
.. Clinton County Farmers' Institute.....	3 00
Illinois State Journal, printing.....	5 75
American Express Company, express.....	20 86
United States Express, express.....	2 32
Adams Express Company, express.....	24 25
Springfield Novelty Company, typewriter ribbons.....	3 60
Illinois State Register, printing and stationery.....	36 90
E. L. Hardin, cartage.....	3 00
J. Irving Pearce, board member.....	2 75
Charles B. Hatch, board member.....	10 50
G. W. Dean, expense as director.....	18 28
Charles F. Mills, expense as director.....	16 25
A. P. Grout, expense as director.....	48 30
Secretary, salary December, 1898.....	25 00
Superintendent, salary December, 1898.....	100 00
L. N. Beal, expense as director.....	7 00
S. Noble King, expense as director.....	16 81
Amos F. Moore, expense as director.....	37 58
G. A. Willmarth, expense as director.....	67 62

Respectfully submitted,

AMOS F. MOORE,
L. N. BEAL,
S. NOBLE KING,
G. A. WILLMARTH,

The committee then adjourned subject to the call of the chair.

CHARLES F. MILLS,
Secretary.

LELAND HOTEL,

January 11, 1899, 8 o'clock p. m.

The Executive Committee met on the call of Chairman Moore.

Present, Messrs. Dolton, King, Moore and Secretary Mills.

The committee then proceeded to examine claims and adopted the following report recommending for payment the amounts named thereon, viz.:

To the Board of Directors of the Illinois Farmers' Institute:

The undersigned members of the Executive Committee, having duly examined the claims of the parties named below, have approved the same, and recommend that warrants in payment of said vouchers be drawn to the order of the respective claimants for the following amounts, viz.:

A. F. Moore, expense as director.....	\$13 54
G. W. Dean, expense, as director.....	8 20
Charles W. Dolton, expense as director.....	5 50

Respectfully submitted,

AMOS F. MOORE,

Mr. King introduced the following resolution favoring a division of the funds received by the State Agricultural College, under the acts of Congress, for instruction in agriculture and the mechanic arts, to the end that at least one-third of said amount be devoted to technical instruction in agriculture. Adopted.

Resolved, That one-third of the money received by the University of Illinois, and appropriated by the acts of Congress for the more perfect endowment and support of the colleges, for the benefit of agriculture and mechanic arts, should be set apart for technical instruction in agriculture, and that such division of said funds be made available from and after this date, for the purpose named in this resolution.

The copy of the program of the State institute meeting was read and approved.

On motion it was ordered that ten thousand copies of the program be printed and that 500 copies be bound in cover paper.

The following bills presented by the Committee on Legislation, providing for appropriation for the State institute for 1899 and 1900 and an increase in the number of volumes of the report of the State Institute were read and approved. (See minutes of meeting Legislative Committee, January 11, 1899).

Adjourned subject to the call of the Chair.

AMOS F. MOORE,
Chairman.

CHARLES F. MILLS,
Secretary.

MEETING LEGISLATIVE COMMITTEE.

STATE HOUSE, January 11, 1899, 11 o'clock a. m.

The Legislative Committee met on the call of Chairman Grout.

Present: Messrs. Dean, Dolton, Dunlap, Grout, King, Mills and Moore.

Mr. Mills was made secretary of the committee.

Mr. Grout stated that the committee had been convened for the purpose of considering the bills to be presented to the General Assembly, for legislation needed for the Illinois Farmers' Institute.

The draft of the bill for an act providing for appropriation for the Illinois Farmers' Institute was considered and amended to read as follows:

AN ACT Making Appropriations for Illinois Farmers' Institute and County Farmers' Institutes.

WHEREAS, To assist and encourage useful education among farmers, and for developing the agricultural resources of the State, the Thirty-ninth General Assembly created an organization under the name and style of the Illinois Farmers' Institute, and entrusted to it the development of greater interest in the cultivation of crops, in the breeding and care of domestic animals, in dairy husbandry, in horticulture, in farm drainage, in improved highways and general farm management, through and by means of liberal discussions of these and kindred subjects, and for improving the condition of the farmer, by affording a better knowledge of successful agriculture. Therefore to sustain the same;

SECTION 1. Be it enacted by the people of the State of Illinois, represented in the General Assembly, that there be, and is hereby appropriated to the Illinois Farmers' Institute the following sums, to-wit: For expressage, postage, office expenses, furniture, etc., the sum of one thousand, three hundred dollars (\$1,300) per annum for the years 1899 and 1900.

SEC. 2. For the expense of collecting matter and preparing manuscript, editing the annual report and bulletins, stenographer, clerk hire, etc., the sum of one thousand, seven hundred dollars (\$1,700) per annum for the years 1899 and 1900.

SEC. 3. For the actual expense of district directors, and of able and practical speakers to be furnished by the Illinois Farmers' Institute, to the County Farmers' Institute, for the purpose of assisting in making their meetings of general interest and of the greatest practical benefit; for the expense of organizing county institutes; for the expense of printing programs, advertising of speakers and exhibit at the State Institute, the sum of five thousand dollars (\$5,000) per annum for the years 1899 and 1900. *Provided*, That County Institutes or their representatives shall be permitted to select their own speakers and to have such topics for consideration as shall be of special interest to their respective localities.

SEC. 4. For the use of each County Farmers' Institute the sum of seventy-five dollars (\$75) per annum for the years 1899 and 1900, to be paid the treasurer of each County Farmers' Institute, when such institute shall file with the secretary of the Illinois Farmers' Institute a sworn statement, which shall show that said County Farmers' Institute has held one or more duly advertised public sessions annually of not less than two days each, at some easily accessible location, which shall include an itemized exhibit of the expenses of said meeting, with receipted vouchers therefor, a copy of its printed program, and the printed proceedings, showing title and author of the papers read, and by whom discussed, place or places of meeting, with daily average attendance, and such other information as may be called for by the Illinois Farmers' Institute, and necessary to successfully assist in the work.

No officer or officers of any County Farmers' Institute shall be entitled to or receive any moneyed compensation whatever for any services rendered in the same.

That on the order of the president, countersigned by the secretary of the Illinois Farmers' Institute, and approved by the Governor, the Auditor of Public Accounts shall draw his warrant on the treasurer of the State of Illinois in favor of the treasurer of the Illinois Farmers' Institute for the sums herein appropriated;

Provided, That each warrant on account of a County Farmers' Institute shall show the county Institute for whose benefit the same is drawn. *Provided further*, That the program and printed proceedings of the County Farmers' Institute, for which each warrant is drawn, shall show that the following topics have been presented and discussed, viz: Grain farming, stock feeding and breeding, dairy husbandry, orchard and small fruit culture, farmer's garden, domestic science, and any other subjects pertaining to farm life. *Provided further*, That if the necessary expense of a County Farmers' Institute shall not equal the sum of seventy five dollars (\$75) as aforesaid, then said warrant shall only be drawn for the sum expended.

It shall be the duty of the treasurer of the Illinois Farmers' Institute to pay over to the treasurer of the County Farmers' Institute the sum of seventy-five dollars (\$75), or so much thereof as may be received for its use and benefit as aforesaid, and make annual report to the Governor as provided by law.

Adjourned to 2 o'clock p. m.

The committee met as per adjournment.

The chairman introduced a committee representing the Illinois Live Stock Breeders' Association, who requested that provision be

made for publishing the proceedings of the annual meeting of said organization in the annual report of the Illinois Farmers' Institute, and that ten thousand extra copies of said report be published.

The draft of a bill providing for said increase in number of reports with the proceeding of the Stock Breeders' Association was submitted and amended to read as follows:

AN ACT Making Appropriation for the Publication of the Annual Report of the Illinois Live Stock Breeders' Association.

WHEREAS, The Illinois Live Stock Breeders' Association, having for its object the promotion of the interests of the breeders of live stock in Illinois, and representing an industry second to none, in its value and importance to the State, collects each year up-to-date papers, and discussions of great practical value pertaining to the breeding, feeding and marketing of all classes of live stock and the products therefrom, and

WHEREAS, No provision has been made by the General Assembly of Illinois for the publication of the valuable papers and discussions constituting the proceedings of the annual meetings of the Illinois Live Stock Breeders' Association, therefore, to preserve and widely deceminate said useful information among the farmers of the State,

SECTION 1. *Be it enacted by the People of Illinois, represented in the General Assembly:* That an act passed by the Thirty-ninth General Assembly and styled, "An act creating the Illinois Farmers' Institute," and approved June 24, 1895, be and is hereby amended in Section 4, so as to provide for an increase in the number of reports provided for in said act, to-wit:

The Governor shall cause twenty thousand copies (20,000) of said report to be printed, one-fourth for the use of the State and General Assembly, and the remainder for the Illinois Farmer's Institute and the Illinois Live Stock Breeders' Association.

§ 2. The limit fixed by statute providing that certain State reports do not exceed three hundred pages, shall not apply to the number of pages in the annual report of the Illinois Farmers' Institute, which may exceed said limit of three hundred (300) pages, to such an extent as may be necessary to provide pages for the proceedings of the annual meeting of the Illinois Live Stock Breeders' Association, and such other papers pertaining to the farm, as may be of current general interest to the farmers of Illinois, and not exceeding six hundred pages.

Adjourned subject to the call of the chair.

A. P. GROUT,
Chairman.

CHARLES F. MILLS,
Secretary.

PLUMB HOUSE,
STREATOR, ILL., Jan. 27, 1897,
8:30 O'clock A. M.

The Executive Committee met as per adjournment.

Called to order by Vice President Willmarth.

Present: Messrs. Dolton, King, Willmarth, and Secretary Mills.

Mr. L. R. Bryant, of Princeton, was invited to address the committee concerning the arrangements being made by the citizens of Princeton for the holding of the annual meeting Feb. 21, 22, and 23, 1899. Mr. Bryant stated that owing to the limited time for advertising for the contemplated exhibits to be held in connection with the State meeting that the local committee did not favor the exhibit.

The matter of abandoning the proposed exhibit was discussed by Messrs. Dolton, King, and Shank.

Mr. King moved that inasmuch as the committee representing the citizens of Princeton did not favor the holding of the proposed exhibit in connection with the State Institute, that the same be abandoned. Adopted.

Motion of Mr. King adopted that Mr. Bryant be authorized to present for audit any bills incurred by the local committee in preparatory arrangements for the contemplated exhibit.

Motion of Mr. Dolton adopted that \$100, or as much thereof as may be needed, be set apart for adversting the annual meeting of the Illinois Farmers' Institute in the Princeton papers, by posters and that said sum may be expended under the direction of the Princeton committee.

The committee then proceeded to the consideration of certain claims enumerated in the following report, which was adopted with recommendation for the approval of the Board of Directors, viz.:

To the Board of Directors of the Illinois Farmers' Institute:

The Undersigned members of the Executive Committee having duly examined the claims of the parties named below, have approved the same and recommend that warrants in payment of said vouchers be drawn to the order of the respective claimants for the following amounts, viz.:

Treasurer	.....	350.00
"	.....	20.00
"	.....	50.00
"	.....	20.00
"	.....	50.00
"	.....	50.00
"	.....	20.00
"	.....	22.92
"	.....	50.00
"	.....	19.70
"	.....	50.00
"	.....	70.00
"	.....	50.00
"	.....	50.00
"	.....	18.00
"	.....	42.85
"	.....	50.00
"	.....	38.25
"	.....	50.00
"	.....	50.00
"	.....	70.00
S. Noble, expense as Director.....		13.89
Charles H. Dolton, expense as Director.....		25.87
D. H. Shank, expense as Director.....		10.25
"	.....	22.38
"	.....	10.43
"	.....	5.00
"	.....	3.50
"	.....	1.50
"	.....	8.50
"	.....	25.00
"	.....	100.00
"	.....	8.00
"	.....	5.86
"	.....	10.75
"	.....	7.50
"	.....	10.21
nte.....		50.00
ite.....		70.00
"	.....	8.69

Respectfully submitted,

G. A. WILLMARTH,
CHARLES H. DOLTON,
S. NOBLE KING.

Adjourned to meet at Dixon, Feb. 3, 1899.

CHARLES F. MILLS,
Secretary.

NACHUSA HOUSE,
DIXON, ILL., Feb. 3, 1899,
9:00 O'clock A. M.

The Executive committee met as per adjournment.

Called to order by President Moore.

Present, Messrs. Dolton, King, Moore, Willmarth and Secretary Mills.

The committee proceeded to the consideration of certain claims enumerated in the following report, which was adopted with recommendation for the approval of the board of directors, viz:

To the Board of Directors of the Illinois Farmers' Institute.

The undersigned members of the executive committee, having duly examined the claims of the parties named below, have approved the same, and recommend that warrants in payment of said vouchers be drawn to the order of the respective claimants for the following amounts, viz:

to.....	\$50 00
.....	50 00
.....	70 00
.....	50 00
.....	62 40
.....	50 00
.....	7 50
.....	50 00
.....	20 00
.....	50 00
.....	17 85
.....	50 00
.....	77 00
.....	13 39
.....	12 50
.....	11 62
.....	8 00
.....	10 25

Respectfully submitted,

AMOS F. MOORE,
CHARLES H. DOLTON,
S. NOBLE KING,
G. A WILLMARTH.

Adjourned to meet at Princeton February 20, 1899.

CHARLES F. MILLS, *Secretary.*

AMERICAN HOUSE,
PRINCETON, ILL., Feb. 20, 1899, 9:00 O'clock p. m.

The executive committee met on call of Chairman Moore, who stated that the meeting had been called for the purpose of auditing claims.

Present, Messrs. Dolton, Moore, Willmarth and Secretary Mills.

The committee then proceeded to examine claims and adopted the following report recommending for payment the amounts named thereon, viz:

To the Board of Directors of the Illinois Farmers' Institute.

The undersigned members of the executive committee, having duly examined the claims of the parties named below, have approved the same, and

recommend that warrants in payment of said vouchers be drawn to the order of the respective claimants for the following amounts, viz:

Treasurer	Bureau County Farmers' Institute.....	\$50 00
"	Bureau County Farmers' Institute.....	20 00
"	Crawford County Farmers' Institute.....	50 00
"	DuPage County Farmers' Institute.....	50 00
"	DuPage County Farmers' Institute.....	20 00
"	Cumberland County Farmers' Institute.....	48 38
"	Henderson County Farmers' Institute.....	50 00
"	Henderson County Farmers' Institute.....	26 00
"	Jasper County Farmers' Institute.....	50 00
"	Jasper County Farmers' Institute.....	20 00
"	JoDaviess County Farmers' Institute.....	50 00
"	JoDaviess County Farmers' Institute.....	20 00
"	Lawrence County Farmers' Institute.....	50 00
"	Lawrence County Farmers' Institute.....	8 00
"	Lee County Farmers' Institute.....	50 00
"	Lee County Farmers' Institute.....	50 00
"	McDonough County Farmers' Institute.....	32 43
"	Menard County Farmers' Institute.....	50 00
"	Menard County Farmers' Institute.....	20 00
"	Ogle County Farmers' Institute.....	50 00
"	Ogle County Farmers' Institute.....	20 00
"	Perry County Farmers' Institute.....	50 00
"	Richland County Farmers' Institute.....	50 00
"	Richland County Farmers' Institute.....	15 00
"	Stark County Farmers' Institute.....	50 00
"	Tazewell County Farmers' Institute.....	38 70
"	Winnebago County Farmers' Institute.....	50 00
"	Winnebago County Farmers' Institute.....	20 00
Secretary	services, month February, 1899.....	25 00
Superintendent	services, month February, 1899.....	100 00
Illinois State Register,	printing blanks, etc.....	42 70
United States Express Company.....		16 20

Respectfully submitted,

AMOS F. MOORE,
G. A. WILLMARTH,
L. N. BEAL,
S. NOBLE KING.

The committee then adjourned subject to the call of the Chair.

CHARLES F. MILLS, *Secretary*.

STATE HOUSE, SPRINGFIELD, ILL.,
February 28, 1899, 10:30 a. m.

The Executive Committee met on call of the Chair.

Present, Messrs. Beal, Dolton, King, Moore and Willmarth.

The committee proceeded to audit claims, and approved and recommended for payment the bills named thereon:

To the Board of Directors of the Illinois Farmers' Institute:

The undersigned members of the Executive Committee, having duly examined the claims of the parties named below, have approved the same, and recommend that warrants in payment for said vouchers be drawn to the order of the respective claimants for the following amounts. viz:

Treasurer	Boone County Farmers' Institute	\$50 00
"	Boone County Farmers' Institute.....	10 70
"	Christian County Farmers' Institute.....	50 00
"	Christian County Farmers' Institute.....	20 00
"	DeKalb County Farmers' Institute.....	50 00
"	Kane County Farmers' Institute.....	50 00
"	Kane County Farmers' Institute	20 00

Livingston County Farmers' Institute.....	50 00
Livingston County Farmers' Institute.....	20 00
Rock Island County Farmers' Institute.....	39 29
Rock Island County Farmers' Institute.....	69 16
Woodford County Farmers' Institute.....	50 00
Woodford County Farmers' Institute.....	20 00
G. H. Gurler, speaker State Institute.....	7 49
D. C. Wagner, speaker State Institute.....	11 80
J. M. Hollingsworth, speaker State Institute.....	18 02
Mrs. I. W. Richards, speaker State Institute.....	7 30
Joseph Carter speaker State Institute.....	9 96
J. H. Monrad, speaker State Institute.....	18 93
George W. Barnett, speaker State Institute.....	8 74
P. H. Sprague, speaker State Institute.....	6 74
John I. Rinaker, speaker State Institute.....	13 88
Mrs. H. M. Dunlap, speaker State Institute.....	11 85
Mrs. Jos. Carter.....	7 45
American House, board speakers, etc.....	20 33
C. N. Keith, advertising Institute.....	100 00
C. H. Dolton, expense as director.....	12 90
S. Noble King, expense as director.....	23 89
Charles F. Mills, expense as director.....	13 89
.....	20 45
.....	36 58
.....	19 43
.....	16 48
.....	20 48
.....	12 92
.....	11 52
ute.....	7 35
.....	11 05
.....	27 15
.....	8 10
titute.....	2 00
.....	10 00
.....	18 85
.....	6 08
of.....	11 06
.....	9 10
of.....	16 70
.....	11 70
.....	26 31
.....	13 75
.....	11 64
.....	37 62
.....	5 90
.....	22 40
.....	9 26
.....	12 45
.....	6 00
.....	17 05
.....	11 05
for room.....	15 00

Respectfully submitted,

AMOS F. MOORE,
S. NOBLE KING.
L. N. BEAL,
G. A. WILLMARTH.

On motion of Mr Beal Mr. Henry McKeen was allowed \$15.00 for shipping reports, cleaning room, etc.

On motion the committee adjourned subject to the call of the Chair.

AMOS F. MOORE,
Chairman.

CHARLES F. MILLS,
Secretary.

MINUTES OF MEETING OF BOARD OF DIRECTORS, FEBRUARY 28, 1899.

ROOMS ILLINOIS FARMERS' INSTITUTE,

STATE HOUSE, SPRINGFIELD, Feb. 28, 1899.

The Board of Directors met at two o'clock p. m. in pursuance to law. Called to order by President Moore.

Present, Messrs. Davenport, Fulkerson, Dunlap, Gurler, Dolton, Periam, Lindemann, Moore, Coolidge, Willmarth, Mann, King, Wilson, Dean, Grout, Mills, Shank, Beal and Kimzey.

The minutes of the meeting of the Board held October 17, 1898, were read and on motion of Mr. Coolidge, approved.

The minutes of meetings of the Executive Committee held on the following dates were read, and on motion, the acts of the Committee as therein set forth, were approved, viz.: September 30, 1898; October 18, 1898; November 18, 1898; December 29, 1898; January 11, 1899; January 27, 1899; February 3, 1899, and February 20, 1899.

The Treasurer made the following report of receipts and disbursements to date:

WINCHESTER, ILL., Feb. 28, 1899.

Statement of receipts and orders paid by A. P. Grout, Treasurer of Illinois Farmers' Institute:

RECEIVED OF.		PAID OUT.	
1898.		1898.	
May 25, T. W. Wilson, Treas.....	\$1,601 48	Feb. 28. by orders paid and re-	
June 1, State Treas.....	7 50	turned herewith as per statement	
June 10. ".....	3 60	attached.....	\$6,596 01
Aug. 2, ".....	7,500 00	Balance on hand.....	4,966 48
Oct. 14, ".....	169 00		
1899.			
Jan. 9, ".....	1,282 39		
Feb. 8, ".....	998 52		
Total.....	\$11,562 49	Total	\$11,562 49

The foregoing statement made by me as Treasurer is respectfully submitted to the Board of Directors of the Illinois Farmers' Institute.

(Signed),

A. P. GROUT.

On motion of Mr. Wilson, the report of the Treasurer was referred to a committee of three for audit.

The chair appointed as said committee, Messrs. Wilson, Dean and Coolidge. The committee, after due examination of the report and accompanying warrants, submitted the following report:

SPRINGFIELD, ILL., FEBRUARY 28, 1899.

To the Illinois Farmers' Institute:

The undersigned committee, to whom was referred the report of the treasurer, report that they have compared the warrants drawn on the Treasurer by the Secretary and approved by the Executive Committee, and find them correct.

OLIVER WILSON,
J. H. COOLIDGE,
GEORGE W. DEAN.

The report of the Auditing Committee was received, and on motion approved, and ordered placed on file.

On motion of Mr. King, the report of the Treasurer was approved.

There being no unfinished business, on motion of Mr. Coolidge the old board adjourned *sine die*.

AMOS F. MOORE,
President.

CHAS. F. MILLS,
Secretary.

APPENDIX

ANNUAL REPORTS OF COUNTY FARMERS' INSTITUTES.

ADAMS COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Camp Point, November 11-12, 1898. Officers, President, S. N. Black, Clayton; secretary, J. E. Simmonds, Camp Point.

Program—Friday, 10 a. m.

Invocation, Rev. T. M. Dillon, Camp Point; welcome address, E. E. B. Sawyer, Camp Point; response, E. S. Frank, Clayton; result of the year's experiment with sugar beets, Prof. P. N. Holden, Champaign.

Friday, 1:30 p. m.

Growing and Pruning an Orchard, Daniel Shank, Clayton; What Horse Shall the Farmer Raise? P. A. Immel, Camp Point; recitation, Miss Lenora McGinnis, Camp Point; Advantage of Pure Bred Poultry, Mrs. Ruth Reed, Camp Point; Seeds, Their Condition and Quality as a Factor in the Yield of Crops, Prof. P. N. Holden, Champaign; Question box always open.

Friday, 7 p. m.

Music; recitation, Miss Nellie Garrett, Golden; music; Essay, Grace of Hospitality, Miss Hattie Henry, Camp Point; music; Address, We, the People, Rev. S. H. Dana, Quincy; music.

Saturday, 9 a. m.

Prayer, Elder Charles Laycock, Camp Point; Sheep on the Farm, W. S. Stewart, Golden; Gardening, Small Fruits, W. I. Bates, Camp Point; Growing Wheat, Samuel Spencer, Payson; Law for Keeping Highways Free from Weeds and Rubbish, W. A. Moore, Elvaston, J. S. Campbell, Clayton; Farm Economy, Miss Cora Beckett, Camp Point; The Farmer of Today, Joseph C. Ivins, Quincy.

Saturday, 1:30 p. m.

Corn Culture, S. G. Earel, Quincy, Scott Taylor, Camp Point; Landlord and Tenant, Thomas Bailey, Camp Point, and J. B. Vandeventer, Mt. Sterling; What to do in an Emergency, H. M. Cowan, M. D., Mt. Sterling; recitation, Hattie Bartells, Camp Point; Laws Necessary to Prevent Adulteration of Food, Prof. P. N. Holden.

Officers elected for the ensuing year: President, S. N. Black, Clayton; secretary, J. E. Simmonds, Camp Point; treasurer, Ed. S. Franks, Clayton.

BOND COUNTY FARMERS' INSTITUTE.

The Bond County Institute was held at Sorento on September 15th and 16th, 1898, under the charge of the following officers: President, I. H. Denny, Sorento; secretary, E. P. Gracy, Sorento; treasurer, F. Dressor, Sorento, with the following program:

Thursday, September 15.

9:30 to 10:00, music by the Sorento band; 10:00, called to order by the president, I. H. Denny; 10:10, invocation by Rev. Van Atten; music, overture, "Nugget Nell," Sorento band; 10:30, address of welcome by S. Lee Elliott; 11:00, response, by H. M. Ferguson; 11:15, music by Sorento band; 12:00, adjourn for dinner; 1:00 to 1:30, music by Sorento band, overture "Night Wanderer," and "World's Fair" Polka; 1:30, Address, Variety Farming, W. D. Matney; 2:00, Essay, Why a Farmer's Boy Should Have an Education, Mrs. L. N. Beal; 2:15, music, "Indiana State Band" March, Sorento band; 2:20, Address, Stock Interests on the Farm, Hon. A. M. Caldwell; 3:15, Address, Profit and Loss on the Farm, W. A. Young; 3:30, Address, Horticulture, L. N. Beal; 4:00 to 4:30, Miscellaneous Talks; 4:30, adjourn; 6:30, band concert; 7:30, Lecture, Our Civilization and Its Perils, Rev. Sam Small.

Friday, September 16.

9:00 to 9:30, band concert; 9:30, invocation by Rev. Sam Small; 9:45, Essay, Lights and Shades on the Farm, Mrs. C. Harned; 10:00, Address, Farming, Judge Joseph Story; 10:30, Essay, Music in Farm Life, Mrs. Dora Siemens; 10:45, address, A. A. K. Sawyer; 11:15, music, "Itasca" March and "I Was Hot," Sorento band; 11:30, adjourn for dinner; 1:00 to 1:30, music, "Midland" Overture and "Woodland" Waltz, Sorento band; 1:30, essay, Mrs. W. E. Robinson; 1:45, Address, Farmers Stand for the Proposition, Agriculture the Greatest Industry of Man, Hon. M. M. Sharp; 2:30, Essay, Why Farmers' Daughters Should be Educated, Mrs. T. E. Savage; 3:00, Address, How to Retain Boys on the Farm, Hugh Snell; 3:20, Essay, Farm Treaties, Alfred Compton; 4:00, Miscellaneous Talks; 4:30, music, Sorento band; 6:30, band concert; 7:30, Lecture, The Foundations of Americanism, Rev. Sam Small.

The same officers were elected for the ensuing year. Average daily attendance, 2,000; cost of institute, \$120.

BOONE COUNTY FARMERS' INSTITUTE.

The annual meeting was in Belvidere February 1, 2 and 3, 1899, under the management of the following officers: A. S. Collins, president; O. S. Cohoon, vice president; G. F. Sager, secretary; Frank Leach, treasurer.

Program—First Day: |

10:00 a. m., meeting of committees; 11:00 a. m., election of officers.

Afternoon session, 1:30 p. m.

Music; prayer by Rev. F. M. Hubbell; address of welcome, Mayor Moore; response President A. S. Collins, Belvidere, Ill.; Swine Breeding and Feeding, A. J. Lovejoy, Roscoe Ill.; Relation of Farm and Press, F. T. Moran; discussion.

Note—No person shall exceed five minutes in discussion without consent of the chair.
Second day.

10:00 a. m., music; prayer by Rev. Julian Herrick; Leaks, Why Stopped? Fragments, Why Saved? H. W. Avery, Belvidere, Ill.; discussion; Attractive Farm Homes, Mrs. Spen. Bailey, Belvidere, Ill.; discussion; The Up-to-Date Horse, Col. F. J. Berry, Union Stock Yards, Chicago; discussion; question box.

Afternoon session.

Music; prayer by Rev. S. Earngey; Some of the Fine Points in Butter Making, C. L. Fitch, superintendent Hoard's creameries, Fort Atkinson, Wisconsin; discussion, Cattle and Stock Raising, Fred Hatch, Spring Grove; discussion; recitation, Mrs. Frank Mundy, Belvidere; Stray Thoughts on Farming, Prof. M. Moore, Belvidere; discussion; question box.

Third day.

10:00 a. m., music; prayer, Rev. Dr. Pierce; Fruit on and for the Farm, S. E. Hall, Cherry Valley; discussion; Good Roads, B. F. Wyman, Sycamore, Ill.; discussion; question box; The Big Packing Houses of Chicago from a Farmer's Standpoint, as a Great Benefit to the Stock Grower, Col. F. J. Berry, Union Stock Yards, Chicago.

Afternoon session.

1:30 p. m., music; prayer by Rev. T. W. Heyland; Facts and Figures in Poultry Raising, A. H. Currier, president Northern Illinois Poultry Association, Rockford, Ill.; discussion; The Educational Influence of the Farm, Mrs. A. O. Witbeck; discussion; Injurious and Beneficial Insects and How to Deal With Them, Prof. A. J. Snyder, Belvidere; discussion; question box. Officers elected for ensuing year: President, O. F. Lucas, Belvidere; secretary, Luther Lawrence, Belvidere; treasurer, Frank Leach, Belvidere; average attendance, 400; cost of institute, \$60.70.

BROWN COUNTY FARMERS' INSTITUTE.

Annual meeting held at court house, Mt. Sterling, November 9 and 10, 1899. Officers: President, J. B. Vanderventer, Mt. Sterling; secretary, Herbert A. Perry, Mt. Sterling; treasurer, Herbert A. Perry, Mt. Sterling.

Program—Wednesday, November 9.

10:30, invocation, Rev. N. M. Rigg, of Mt. Sterling; song, by quartet; welcome address, by president; At What Age to Market Stock to Obtain Best Results, C. J. Davis, of Mounds; discussion and adjournment.

Afternoon.

1:30, song, Mt. Sterling quartet; Breeding and Management of Swine, Hon. G. A. Willmarth, of Seneca, vice president State Farmers' Institute; discussion; song, Mt. Sterling quartet; recitation, Miss Mabel Means, of Mt. Sterling; Sheep Husbandry, G. J. Hersman; discussion and question box; recitation, Miss Nettie Cronin, of Mt. Sterling; song.

Program—Second day, Thursday, November 10.

9:30, prayer, Rev. Alex McGaffin; song, Hersman quartet; Corn Culture, S. D. Nokes; recitation, Miss Mary Drew, of Missouri township; Recent Progress in Control of Animal Diseases, Dr. E. M. Nighbert, Assistant State Veterinarian of Illinois; song and adjournment.

Afternoon.

1:30, song, by quartet; Results of the Different Kinds of Cultivation of Corn at the University of Illinois, Prof. P. G. Holden, of Champaign; question box; recitation, Miss Ella Dorset of Augusta; duett, Florence L. Vandeventer, Alta B. Six; The Horse, George W. Means; discussion; song; election of officers for ensuing year; president, S. D. Nokes, Mt. Sterling; secretary and treasurer, H. A. Perry, Mt. Sterling; average attendance, 200; cost of institute, \$28.25.

BUREAU COUNTY FARMERS' INSTITUTE.

Annual meeting was held at Princeton, January 24-25, 1899.

Officers.—President, C. C. Pervier, Sheffield; vice-president, D. P. Smith, Kosbear; secretary, H. G. Bryant, Princeton; treasurer, E. A. Washburn, Princeton.

Program.—Tuesday, January 24, 1899, 10 a. m.

Music; prayer; welcome address, Mayor R. M. Skinner; response, President C. C. Pervier; Farm Labor, Frank Morrissey, Sheffield, Ill.; appointment of committees.

Tuesday, 1:30 p. m.

Music; Corn, E. L. Farsman, President Illinois Corn Growers' Association, El Paso, Ill.; music; The Farmers' Orchard, L. R. Bryant, Secretary Illinois State Horticultural Society, Princeton, Ill.

Tuesday, 7:30 p. m.

Music; Water Supply on the Farm, J. L. White, Peru, Ill.; Good Literature in Farm Homes, Mrs. E. M. Hannum, Buda, Ill.; music; Philanthropic Work of the State Federation of Women's Clubs, Mrs. C. J. Richardson, Princeton, Ill.; music.

Wednesday, January 25, 9:30 a. m.

Music; prayer; report of committees; election of officers; report of delegates to the state meeting at Champaign, Ill., for 1898; The Farm Renter, What He Was, What He Is, and What He Ought To Be, Hugh Greig, Oneida, Ill.; Poultry, James Garvin, Princeton, Ill.

Wednesday, 1:30 p. m.

Music; the ladies of Bureau county will meet at 2:00 p. m. to organize a County Domestic Science Association; Beef Cattle, Dr. C. A. Palmer, Princeton, Ill.; vocal solo, Mrs. W. E. Jones, Sheffield, Ill.; Better Live Stock, and How to Get It, Prof. Eugene Davenport, Dean of the College of Agriculture, Champaign, Ill.

Wednesday, 7:30 p. m.

Music; Domestic Science, Mrs. Nellie Kedzie, of the Bradley Polytechnic Institute, Peoria, Ill.; vocal solo, Mrs. W. E. Jones, Sheffield, Ill.; Agricultural Education, David Ward Wood, Editor Western Plowman, Chicago, Ill.; music; final resolutions.

Same officers elected for the ensuing year; average daily attendance, 1,200; cost of institute, \$99.88.

C. C. PERVIER, Sheffield, Ill.

CALHOUN COUNTY FARMERS' INSTITUTE.

Annual meeting held at Hardin. November 29-30, 1898.

Officers.—President, Wm. E. Barber, Hamburg; secretary, C. H. Lamar, Hardin; Treasurer, C. H. Lamar, Hardin.

Program.—First day.

10:00 a. m., Some of the Essentials of a Successful Institute, W. E. Barber; 10:20 a. m., Advances in Farming, Marion Todd; 10:40 a. m., Does It Pay to Raise Fifty-Cent Wheat? Opened by John Knese and George Long; 11:00 a. m., Merits of Hogs and Cattle as Money makers, opened by Adam Herter; 11:20 a. m., Sheep, J. Q. Nimerick; appointment of committees; 12:00 m., adjournment; 1:30 p. m., Work and Mission of Farmers' Institutes, G. A. Welwarth, Vice-President Farmers' Institute Association, Seneca, Ill.; 2:00 p. m., Farm Leaks, J. Fowler; 2:30 p. m., The Farmers' Diet, Dr. G. A. Williams; 2:45 p. m., The Farmer's Wife and Daughter, opened by Mrs. Mattie Child; 3:00 p. m., Rotation of Crops, A. P. Grout, President Illinois Farmers' Institute, Winchester, Ill.; 3:40 p. m., Questions and Answers; 4:00 p. m., adjournment.

Second day.

9:30 a. m., The County Paper and Farmer, J. E. Watson and Chas. H. Lamar; 10:00 a. m., The Sugar Beet Industry, P. G. Holtley, Agricultural College, Champaign, Ill.; 11:40 a. m., A Model Farm, E. S. Fursman, El Pana, Ill.; 11:20 a. m., Breeding and Care of Swine, G. A. Welwarth, Seneca, Ill.; 11:50 a. m., report of committees; 12:00 m., adjourn; 1:30 p. m., The Orchard, S. J. Merida, A. Schulze; 2:00 p. m., How to make It Most Profitable, J. Fowler, E. Hughes; 2:30 p. m., Things to be Avoided on the Farm, John Day; 2:50 p. m., Poultry, Mrs. Clugsten, Mrs. B. H. Williams; 3:15 p. m., Dairying for Profit, Mrs. C. L. Wood; 4:00 p. m., Suggestions for next Institute; adjourn.

Same officers re-elected for the ensuing year; average daily attendance, 40; cost of Institute, \$70.00.

CARROLL COUNTY FARMERS' INSTITUTE.

Annual meeting held at Savanna, Dec. 21 and 22, 1898.

Officers.—President, J. V. Cotta, Nursery; secretary, W. R. Hostetter, Mt. Carroll; treasurer, C. Lamp, Lanark.

Program.—Wednesday, 10:30 A. M.

Meeting called to order by president: prayer, Rev. C. F. Moore; address of welcome, W. H. Griffith, mayor of Savanna; response and address, J. V. Cotta, president of Institute. The books sent to the Institute by the State Institute will be distributed free to those wishing them; they are well bound reports of the State Institute meeting. Address, Best Method of Getting a Good Stand of Grass, by C. Lamp, Lanark; discussion will be led by Jacob Grossman, George Morris, of Lanark; Albert Hartman, of Mt. Carroll. Persons desiring any special questions answered, or topics discussed, are requested to hand the same to the secretary in writing; these questions, or topics, will be brought before the meeting as opportunity offers.

Afternoon session, 1:00 P. M.

All corn for exhibition must be in the hall before 1 o'clock. Any one having potatoes or other farm products to exhibit will be allowed space in the hall to show them. Paper, Corn Cultivation, by A. D. Shamel; Mr. Shamel is from the State University, and is thoroughly posted upon what is being done for the farmers at the experiment station. Corn is the most valuable in Carroll County, and every farmer should know the best methods of cultivation. Paper, Cost of a Bushel of Corn, by Calvin Finlayson; discussion led by Jerry Slick, of Lanark; Jos. Fike, Milledgeville; D. R. Bennett, Argo. Every one present will have the privilege of asking Mr. Shamel questions.

Evening session.

Music, Choral Union; Recitation; music, Choral Union; appointment of committees; address, Wm. P. McKee, Dean Frances, Shimer Academy, Mt. Carroll; music, Choral Union; A Talk on Weather Forecasts, Charles E. Linney, Section Director U. S. Weather Bureau, Chicago; music, Choral Union; Recitation; music, Choral Union.

Thursday, 10:30 A. M.

Paper, Draft Horses, by D. S. Mackay; discussion led by John Ross, of Savanna; Will J. Hay, of Mt. Carroll; Jaynes Bennett, Thomson; paper, Driving Horses, by George Kenyon, Mt. Carroll; discussion led by George N. Melendy, Thomson; Isaac Gillespie, Zion; A. H. Hawk, Lanark; Paper, Swine Breeding; it is expected that G. A. Willmarth, of Seneca, will take this topic; discussion led by Philip Miller, Chadwick; Thomas Jenks, Savanna; J. W. Miller, Savanna.

Afternoon session, 1:00 P. M.

Election of Officers and reports of committees; Poultry Raising, by E. D. Leland, Lanark; discussion led by Mrs. Henry Harnish, Mt. Carroll; George Sword, Lanark; Amos Yordy, Shannon; Paper, Domestic Science for Farmers' Wives, by Mrs. Henry M. Dunlap, Savoy; discussion led by Mrs. Charles Beede, Chadwick; Mrs. F. S. Greenleaf and Miss Dupuis, Savanna; Mrs. W. Ross Hostetter, Mt. Carroll; Mrs. R. Grohering, Thomson.

Officers elected for the ensuing year.—President, D. S. Mackey, Mt. Carroll; secretary, W. R. Hostetter, Mt. Carroll; treasurer, C. Lamp, Lanark.

Average daily attendance, 132; cost of Institute, \$120.33.

CASS COUNTY FARMERS' INSTITUTE.

Annual meeting was held at Virginia, Oct. 20, 21 and 22, 1898.

Officers.—President, M. L. Crum; secretary and treasurer, W. B. Canover, Virginia.

Program.—Thursday afternoon, October 20, 1:30 P. M.

Call to order, Pres. M. L. Crum; music, piano solo, Miss Floy Dunaway; address of welcome, C. M. Tinney; response, Pres. M. L. Crum; recitation, Miss Louise Savage; Cattle Feeding and Breeding, Hon. A. P. Grout, Winchester, Ill.; general discussion; The Horse Industry, Ferd. Winhold; music, vocal solo, Miss Pearl Barkley; adjournment.

Thursday evening, October 20, 7:30 P. M.—Ladies' evening.

Music, piano solo, Miss Myrtle Hickox; music, vocal solo, Mrs. W. D. Humphrey; Domestic Economy, Mrs. Nellie S. Kedzie, Peoria, Ill.; music, vocal solo, Mrs. Henry Phillips; Organization Ladies' Department of County Institute; music, vocal solo, Mrs. John Dirren,

Friday morning, October 21, 10:00 A. M.

Prayer, Rev. Glenroie McQueen; piano duet, Mrs. J. L. Cosner and Miss Emma Gatton; County Taxation, Jeff Houston, Arenzville, Ill.; recitation, Miss Cora Musch; Hog Breeding, Raising and Feeding, John Beggs; general discussion; Farmers' Telephone System, general discussion, led by Frank Virgin; query box opened; music, vocal solo, Ted Phillips; adjournment. A cooking school of corn products by an expert from 12:00 to 1:30 Friday and Saturday.

Friday afternoon, October 21, 1:30 P. M.

Music, piano Duett, Misses Harriet and Kathryn Savage; music, male quartette; Corn Culture, E. S. Fursman, El Paso, Ill.; general discussion; music, vocal solo, E. L. McCaulley; Wheat Growing, general discussion, led by Wm. Coleman; general discussion; queries answered; music, male quartette; adjournment.

Friday evening, October 21, 7:30 p. m.—High School Programme.

Music, High School orchestra; declamation, Alma Widmay; declamation, Lewis Skiles; solo, Edith Massey; music, High School orchestra; children's reading, Prof. B. H. Scudder; declamation, Nadine Robertson; declamation, Lee Smith; solo, Ida Mai Dunaway; quartette, Louise Massey, Lillie Bingham, Eva Struble, Beulah Hueffner; paper, J. N. Gridley.

Saturday morning, Oct. 22, 9:00 A. M.

Meeting of vice presidents to fix date and place of meeting for 1899. Business meeting of executive committee.

10 A. M., prayer, Rev. J. F. Humphrey; music, violin solo, Chesley Mills; The Farmer and His Competitors, Morgan LeMasters; declamation, Willie Gordley; Exhibits at Farm Institutes, A. C. Rice; Drainage of our Overflow Land, Dr. Boone, Chandlerville; music, vocal solo, Miss Ida Mai Dunaway; Shall Cass County be Represented at State Fair? general discussion, led by Henry Pratt; Poultry on the Farm, Miss Hattie Ballard, Sangamon County; discussion; queries answered; music, vocal solo, Miss Edith Mains. A cooking school of corn products by an expert from 12:00 to 1:30. Adjournment.

Saturday afternoon, October 22, 1:30 P. M.

Music, vocal solo, Jim Phillips; Orchards, E. S. Fursman; recitation, Miss Louise Conover; Tillage and Fertilization of Soil, general discussion, led by Mr. Fursman; recitation, Miss Hazel La Touche; award of premiums; announcements; sale of exhibits; music, violin solo, Rose Gatton; adjournment.

The same officers were elected for the ensuing year; the average daily attendance, 300; cost of Institute, \$146.30.

A Domestic Science Association was organized with the following officers: President Mrs. W. T. Price; vice president, Mrs. M. L. Crum; secretary, Mrs. M. C. Petefish; all of Virginia.

CHAMPAIGN COUNTY FARMERS' INSTITUTE.

The last meeting of the Champaign County, Illinois, Farmers' Institute was held at Sidney, January 18-19, 1899.

Isaac S. Raymond, President; E. O. Chester, Vice-President; Z. R. Genung, Treasurer; Jas. A. Hossack, Secretary.

The success of this meeting was due to the untiring efforts of the local committee, Dr. W. F. Burres, John Love, Ed. F. Block, Prof. S. H. Robbins, I. S. Raymond, and all the ladies of Sidney, who have set a most hospitable example to the rest of the county. The ladies had heard something about the "open door," so all visitors were entertained during the meeting. The program was as follows:

Wednesday a. m., January 18, 10:30.

Prayer, Rev. J. R. Reasoner Seymour; opening remarks by the president; address, Cost of Producing a Bushel of Corn in Central Illinois, C. H. Van Vleck, Philo; paper, My Method of Growing Corn, D. J. Holtermann, Sadorus; reports from all exhibitors at the State Fair; Best Yield of Corn Per Acre, J. A. Hossack, Champaign.

Wednesday p. m.

Paper, What to Do with Our Corn, Z. R. Genung, Rantoul; address, Clover, Prof. Joseph Carter, Champaign; address, Small Fruits for Everybody, Rev. J. R. Reasoner, Seymour; address, Sanitary Condition of Our Homes, Dr. W. F. Burres, Sidney.

Wednesday evening, Cole's Opera House.

Music, Sidney High School Orchestra, under Prof. S. H. Robbins; music, piano, Valse Brillante, Moszowski, Miss Grace Adams, Champaign; lecture, The Beauties and Wonders of the Yellowstone National Park, profusely illustrated by stereoptican views, Mrs. W. Bent Wilson, Lafayette, Ind. This was the grandest evening's entertainment the institute ever enjoyed. Stereoptican views by Chas Wilder, Champaign.

Thursday a. m.

Address, Farm Telephones, Geo. F. Bell, Lstant; paper, Sheep, Care and Management, Robert Wright, Mahomet; address, Farm Fences, Dr. J. G. Chambers, Sadorus; paper, Poultry, by Mrs. S. C. Abbott, Mahomet, was presented by Mrs. Jos. Carter, who answered all the discussion; address on Judging Corn by the Score Card; J. H. Beagley, Sibley. Resolutions, etc. The following officers were elected: Isaac S. Raymond, President, Sidney; E. O. Chester, Vice-President, Champaign; Jas. A. Hossack, Secretary, Champaign; Z. R. Genung, Treasurer, Rantoul; and M. A. Dewey, Urbana; Jas. M. Love, Poilo; C. Dyer, Mahomet; Edward Styan, Sadorus. The next institute will be held at Philo, January 18-19, 1900.

Thursday afternoon.

This session was under the management of the Champaign County Housekeepers Association. Mrs. H. M. Dunlap, President, Savoy; Mrs. O. H. Swigart, Secretary, Champaign; music, violin and piano, Master Eugene Steele and Miss Helen Smith, Sidney; recitation, Miss Oral Bocock, Sidney; paper, Some of the Blessings and Needs of Farm Houses, Mrs. I. S. Raymond, Sidney; music, violin and piano, Master Eugene Steele and Miss Helen Smith; address, The State Domestic Science Association, Mrs. Jane P. Carter, Champaign. The following two papers were on the program: Butter Making for Profit, Mrs. Pawson Delavan; Domestic Science in Our Schools and State Institutions of Learning, Mrs. O. H. Swigart, Champaign. Unfortunately for the institute these two ladies were detained in a wreck on the Wabash R. R., 10 miles distant; fortunately there was no one injured. Address, The Needs of the Agricultural College, Capt. S. Noble King, Bloomington. Short addresses, Farm Fences, E. E. Chester, John Love, E. O. Chester and others. At the conclusion of the meeting a Domestic Science Club was organized with the following officers: President, Mrs. I. S. Raymond; Secretary, W. T. Simpson, Sidney.

Average daily attendance, 450; cost of institute, \$63.25.

CHRISTIAN COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Taylorville January 26-27, 1899. Officers: President, R. J. Stone, Stonington; secretary, J. W. Hunter, Owaneco.

Program—Thursday, January 26, morning session, 9:30.

Prayer, Rev. Thompson; address of welcome, Mayor E. Bach; response, R. J. Stone; report of secretary and treasurer; report of committees.

Afternoon session, 1:30.

Vocal and instrumental music; Is the Hedge Fence the Farmer's Friend Today? opened by S. C. Wagener, followed by Harry Grundy and W. T. Baker; Benefits of Farmers' Institutes, by Charles F. Mills, Springfield, secretary State Farmers' Institute; Waste on the Farm, opened by Mark Sloman, followed by C. D. Simpson, F. C. Cloyd and Harry Cheney; music; How Can We Best Improve Our Soil? opened by Charles Bonnell, followed by Thornton Hunter, Sylvester Schrantz, Ake Evans and William Bowersock.

Evening session, 7 o'clock.

The evening session will be presided over by Mrs. Charles E. Evans, of Taylorville; music; address, Major W. T. Vandever; recitation, Miss Maude Temple; essay, Miss Caroline Simpson; solo; address, Domestic Science, Mrs. Nellie Kedzie, of Peoria; adjournment.

Friday, January 27, morning session.

Prayer, Rev. Greenwood; music, Should Our Roads be Worked by contract? opened by William Anderson, Morrisonville; Robert McAfee, Rosemond; W. D. Coffman, Taylorville; general discussion; Poultry on the Farm, opened by Fred Grundy, Mrs. Nettie Green, Bolivia; W. S. Kirkbride, Rosemond; Mrs. Lee Bradley, Taylorville; discussion; Corn Culture, Prof. A. D. Shamel, Champaign; discussion; appointment of committees on nomination of officers for the ensuing year.

Afternoon session.

Music; Raising and Feeding of Swine, opened by Fred Rankins, Athens; Q. I. Simpson, Palmer; J. Harvey Scribner, Moweaqua; T. B. Hart, Edinburg; J. R. Sharp, Taylorville; discussion; Cattle Raising and Feeding, opened by E. A. Vandever, R. B. Temple, Taylorville; E. A. Ponting, Moweaqua; Charles Ebert, Owaneco; O. B. Fraley, Taylorville.

Officers elected for the ensuing year: President, Samuel C. Wagner, Pana; secretary, H. P. Hart, Bolivia; treasurer, W. D. Coffman, Taylorville; average daily attendance, 750; cost of institute, \$72.55.

CLARK COUNTY FARMERS' INSTITUTE.

The Annual meeting was held at Marshall January 19, 20 and 21, 1899. Officers: President, H. P. Lowry, Martinsville; secretary, J. W. Adams, McKeen.

Program—Thursday evening, Jan 19.

Music, Mason's orchestra; quartette, home talent; prayer; address of welcome; address, Professor P. G. Holden.

Friday morning.

Address, General Farming, P. G. Holden; paper, Poultry, Mrs. Rose Carrn, Lis, Ill.

Afternoon session.

How to Improve the Grain on the Farm, Joseph Lutz; The Hen as a Factor on the Farm, H. P. Lowry, Martinsville;

Friday evening.

Music, address, Human Progress, Prof. E. W. Kemp, Terre Haute, Ind.; music.

Saturday morning.

Music; How to Maintain the Fertility of the Soil, J. B. Sheaply; The Cream Separator, William Dittman.

Saturday afternoon.

Music; The Propagation of Fruit, Austin Sweet; Floral Culture, Mrs. Nora Nichols.

Officers elected for the ensuing year:

President, J. W. Adams, McKeen, Ill.;

J. W. Adams.

secretary, J. A. Sweet, Marshall; average daily attendance, 400, cost of institute, \$17.96.

CLAY COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Flora, November 22-23, 1898.

Officers.—President, Joseph Peak, Flora; secretary, A. E. Shinn, Flora.

Program.—November 22-23, 1898.—Forenoon.

10:00 a. m., music; prayer, Rev. John Giffen; address of welcome, J. S. Peak; reply, John R. Bonney; The Corn Crop, and How to Dispose of It, Is. Mills, leader; discussion.

Afternoon.

1:00 to 2:00 p. m., Poultry and Products, E. G. Mooth, leader; discussion, 2:00 to 3:00 p. m., What are the Best Paying Products of the Farm? Nute Sefton, leader; discussion; 3:00 to 4:00 p. m., Drainage, Wm. Landwehr, leader; discussion.

Evening.

7:00 p. m., addresses, Profs. Holden and Blair, of State University, Subjects, Farmers' Pests, and the Best Way of Guarding Against Them, and The Home; question box.

Second Day.—Morning session.

9:00 a. m., The Fruit Question, Capt. Longworth, Capt. Hanon, Capt. John Harrell, leaders; discussion; 11:00 to 12:00 a. m., organization; election of officers.

Afternoon.

1:00 to 2:00 p. m., essay, Sunshine and Shadows of Farm Life, Miss Stella Ramsey; discussion, 2:00 to 3:00 p. m., The Stock Question, cattle, Thos. Pierce; hogs, James McIlvane; sheep, S. Neely; discussion; 3:00 to 4:00 p. m., Maintenance of Farm Fertility, W. H. Jackson, leader; discussion.

JOSEPH PEAK.

Officers elected for the ensuing year: President, J. S. Peak, Flora; secretary, A. E. Shinn, Flora; Treasurer, A. H. Moyer, Flora, average daily attendance, 100; cost of Institute, \$61.70.

CLINTON COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Carlyle, December 9-10, 1898.

Officers.—President, J. T. Donnewald, Carlyle; secretary, M. P. Murray, Carlyle.

Program.—December 9-10, 1898.—Friday afternoon

1:30 p. m., music; 1:40 p. m., Farming as an Occupation, Mr. M. P. Murray; 2:15 p. m., Poultry on the Farm, Mrs. M. E. Castel, Huey, Ill.; discussion, John H. Peterson; 3:00 p. m., How and When to Sow Clover, Gerhard Holtgrave; discussion, Alex. Koehne and Samuel Norman, Sr.; 3:30 p. m., Selection of a Herd of Cows for Dairy Purposes vs. Breeding for Beef, Wm. Hofstomer; discussion, Ralph Hirschfeld and Jacob Specht; adjournment

Saturday morning.

9:30 a. m., music; 9:40 a. m., Benefits and Best Methods of Spraying, Berry Ford, E. S. Nichols and Henry Maddux; 10:10 a. m., Cultivation of Small Fruit, John Boles; general discussion, 10:30 a. m., Raising of Soja Beans vs. Stock Pens and Clover, Memphis Crocker; discussion, Thomas Jones, John Burton and James Posey; 11:40 a. m., Benefits of an Agricultural Education, E. E. Van Cleve; general discussion; adjournment.

Saturday afternoon.

1:30 p. m., music; 1:40 p. m., Education vs. Wealth as an Element for the Improvement of Society, by Hon. Joseph E. Miller; 2:30 p. m., recitation, Clara Morae; 2:40 p. m., address, Prof. S. A. Forbes, of the Illinois State University, The Economic Control of the Chinch Bug; 4:00 p. m., question box.

Officers elected for the ensuing year: President, J. T. Donnewald, Carlyle; secretary, Memphis Crocker, Carlyle; treasurer, John J. Newkirk, Carlyle; average daily attendance, 75; cost of Institute, \$42.95.

COLES COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Charleston, October 27-28, 1898. Officers: President, C. R. Doty, Charleston; Secretary, J. P. Jones, Charleston.

Program, first session, 9:30 a. m., October 27, 1898.

Music; address of welcome, Chas. S. Wiley; response, Pres. C. R. Doty; music; paper, Leaks on the Farm, Thornton Ashbrook; solo, Miss Bessie Ricketts; adjourn for dinner.

Second session, 1:30 p. m.

Music; Economical Feeding of Swine for Market, Fred H. Rankin, Athens, Ill.; duet, Miss Bessie Ricketts; Practical Corn Culture, James Riley, Thorntown, Ind.; music.

Third session, 9:00 a. m., Friday, October 28.

Music; paper, Clover, Fred H. Rankin; solo, Miss Bessie Ricketts; Co-operation Among Farmers, Joseph Coombes, Arcola, Ill.; election of officers; adjourn for dinner.

Fourth session, 1:30 p. m.

Music: How a Boy Can Buy a Farm and Pay for It by His Own Exertions, James Riley; music; The Farmers and Their Interests, Mrs. Ada J. Hall; solo, Miss Mary McCrory; paper, Mrs. Helen Walker; paper, The Influence of Home, Mrs. D. C. James, Bushton, Ill.; song, Auld Lang Syne, audience.

Officers elected for the ensuing year—President, Thornton Ashbrook, Charleston; Secretary and Treasurer, T. L. Endsley, Charleston.

Average daily attendance, 300. Cost of institute, \$50.85.

COOK COUNTY FARMERS' INSTITUTE.

The Cook County Farmers' Institute was organized at Chicago, February 15, 1897. The first institute meetings were held March 24, 25 and 26, 1897—the first two days in the Live Stock Exchange Hall, Union Stock Yards, and the last day at Willard Hall in the Woman's Temple, Chicago. The following officers were elected: President, Jonathan Periam; Secretary and Treasurer, Charles J. Lindemann; Executive Committee, Charles H. Dolton, Andrew Dunning and W. R. Goodwin, Jr.

The second annual institute meeting was held at Barrington, March 8 and 9, 1898, under the management of the following officers: President, Jonathan Periam; Secretary and Treasurer, Charles J. Lindemann; Superintendent, B. H. Sadt, and the Executive Committee. The attendance was very fair considering the cold weather and chilly winds prevailing.

The third annual institute meeting was held at Palatine, February 17 and 18, 1899, under the management of the following officers: President, Jonathan Periam; Secretary and Treasurer, Charles J. Lindemann. The meeting was fairly well attended and some excellent papers read. Attention is called to those recommended to be printed in this report, viz.: "Farm and School" and "The Silo."

The following constitution was adopted:

CONSTITUTION OF THE COOK COUNTY FARMERS' INSTITUTE.

ARTICLE 1.

SECTION 1. This organization shall be known as the Cook County Farmers' Institute.

§ 2. The object of this association shall be the dissemination of correct and advanced information regarding the various departments of agriculture and the promotion of social intercourse among its members.

§ 3. The officers and members of this institute shall, in every way possible, assist and encourage the formation of Congressional District Institutes.

ARTICLE 2.

SECTION 1. Any resident of Cook County engaged in farming or interested in agricultural pursuits, may become a member of this institute by filing his name, accompanied by a membership fee of twenty-five cents with the Secretary.

§ 2. Only duly enrolled members of this institute shall have the right to hold office or to vote, but all general discussions shall be open to every one present; limited, when necessary by any reasonable restrictions the presiding officer may deem wise to impose.

ARTICLE 3.

SECTION 1. The officers of this organization shall consist of a president, vice-president, secretary, treasurer, and an executive committee of five, of which the president and secretary shall be members.

§ 2. The officers shall be elected by ballot, and shall hold their offices for a period of one year, or until their successors are chosen.

§ 3. The election of officers shall take place at the annual meeting.

§ 4. The officers of this institute shall perform the duties usually devolving upon such officers and the president shall, in addition thereto, when occasion requires it, represent this association at any meetings of the presidents of the Cook County Congressional Districts and of the Farmers' Institutes of the counties comprising the Seventh Illinois Congressional District.

§ 5. It shall be the duty of the Secretary to send each year a list of the members of this institute to the Director of the Illinois State Experiment Station, the Secretary of the Illinois State Board of Agriculture, the Secretary of the Illinois State Horticultural Society, the Secretary of the Illinois Live Stock Breeders Association, the Secretary of the Illinois Dairyman's Association, and the Secretary of the Illinois Board of Live Stock Commissioners, with the request that the bulletins and the annual reports of these institutions be sent to these members.

§ 6. The special duties of the executive committee shall be as follows: To determine upon the number of meetings for each year, places and times of holding the same, to prepare the necessary program for said meetings, and to look carefully after all details bearing upon the success of such gatherings. The executive committee shall also at some time during the three weeks immediately preceding the annual meeting, carefully examine the treasurer's books and vouchers, and report fully at the annual meeting the result of such investigation. The executive committee shall look after every business detail in the management of the institute, not otherwise specially provided for.

ARTICLE 4.

SECTION 1. This institute shall hold annually, the exact time and date to be determined by the executive committee, a two days' meeting, and such other gatherings during the year as the executive committee may consider the interests of the association demand.

§ 2. The consideration of the following business matters shall always be a part of the regular program of the annual meeting: a full report of the Institute's treasurer; a report of the executive committee as an auditing committee, and upon any other matters they may wish to bring before the Institute, and the election of officers.

§ 3. So far as practicable the regular meetings of this Institute shall be held in different parts of the county.

§ 4. In all questions of parliamentary usage, not decided by the constitution or by-laws, Robert's Rules of Order shall be authority.

ARTICLE 5

SECTION 1. At any regular meeting of this Institute, by a two-thirds vote, this constitution may be altered or amended.

§ 2. All amendments to the constitution must be submitted to the meeting in writing.

ADOPTED, February 17, 1899.

The program of the meeting was as follows:

Friday, February 17, 1899. Morning session at 9 o'clock.

Music, organization; prayer, Rev F. B. Hardin; address of welcome, Mayor H. C. Battermann; response, Jonathan Periam, President; miscellaneous business, election of officers and delegates; Agricultural Education, H. F. Thurston, Ed. *Farmers' Review*; Agricultural Literature, Miller Pervis, Ed. *Farmers' Voice*; discussions in order after each paper; adjournment to 1 o'clock.

Afternoon session at 1 o'clock.

Music; Home Making, Mrs. Alice Lloyd, Glenn Ellyn, Ill.; Silo, H. D. Hughes, Antioch, Ill.; Neighborhood Clubs, Miss E. Gertrude Gibbs, Associate Ed. *Farmers' Review*; music; A Small Flock of Poultry, W. B. Lloyd, Ed. *Farm, Field and Fireside*; Care of Horses, G. M. Bauder, Mgr. Flagg's Stock Farm, Palatine; Questions from the Question Box; adjournment to 7:30 o'clock.

Evening session at 7:30 o'clock.

Literary program by pupils of public school, W. L. Smyser, Principal; adjournment to Saturday, at 9 o'clock a. m.

Saturday, February 18, 1899; morning session at 9 o'clock.

Music; Shade Trees on the Farm, W. B. Schaeffer, Long Grove, Ill.; Pigeons, C. D. Taylor, Northwestern Dove Farm, Palatine; music; Farmers' Garden, Jonathan Periam, Chicago; Fruit Trees, Geo. Klehm, of Klehm's Nurseries, Arlington Heights, Ill.; Questions from the Question Box; adjournment to 1 o'clock p. m.

Afternoon session at 1 o'clock.

Music; The Farm and the School, C. W. Farr, Assistant Superintendent Cook County Schools; Some Diseases of Cattle, G. A. Lytle, V. S., Government Inspector, Chicago; music; Cook County Dairy Interests, S. Hill, Secretary Milk Shippers Union; Relation of Cook County Farmers to the Proposed Greater Chicago, C. S. Cutting, Esq., Austin, Ill.; Questions from the Question Box.

Officers elected for the ensuing year: President, Jonathan Perlam, 1044 Pratt avenue, Chicago; Secretary and Treasurer, C. J. Lindemann, 145 La Salle street, Chicago.

Average daily attendance, 200. Cost of institute, \$53.50.

CRAWFORD COUNTY FARMERS' INSTITUTE.

Annual meeting was held at Robinson January 31 and February 1, 1899. Officers: President, S. S. Rejnoehl, Robinson; secretary, J. A. Hill, Robinson.

Program — Tuesday and Wednesday,
Jan. 31 and Feb. 1, 1899.

First day.

9:30—Duet, by Apgar Bros.; welcome address, by President Rejnoehl; Selecting and Feeding Steers, H. N. Richey; question box.

Afternoon session.

1:00—Music, conducted by Harlin Correll; Sheep Husbandry, John Taylor; Domestic Economy, Mrs. Dunlap, of Savoy, Ill.; Bacteriology of the Farm, Dr. C. Barlow.

Evening session.

7:30—Duet, by Apgar Bros.; vocal solo, by Miss Lizzie Trimble; Does it Pay to Bother with Flowers? Miss Grace Bales; reading, Lucilla Hoskinson and Marcia Trimble.

Second day.

9:30—Music; How to Judge the Dairy and Beef Animals, Mr. Hornald, of Warrenton, Ill.; Poultry for Profit, by Rose Carr, of Lis, Ill.; question box; election of officers.

Afternoon session.

1:00—Drainage, by Hon. E. Callahan, suggestions for the good of the institute for the coming year.

Officers elected for the ensuing year: President, U. R. Templeton; secretary, J. A. Hill, Robinson; treasurer, John D. Trimble, Trimble.

J. A. Hill.

Average daily attendance, 100; cost of institute, \$50.00.

CUMBERLAND COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Toledo January 26-27, 1909. Officers: President, P. J. Bowman, Greenup; secretary, A. H. Yanaway, Toledo.

Program—Thursday, January 26, 9 a. m.

Call of meeting to order by the president; prayer, Rev. M. F. Ault, Toledo; opening address, Hon. D. B. Green, Toledo; response, J. E. Williams, Timothy; music: Be Temperate, Mrs. J. N. Barger, Bradbury and Mrs. James Dryden, Neoga; discussion: The Advantage of Sheep on the Farm, W. S. Emerich, Casey; discussion: All Purpose Horses on the Farm, D. D. Judson, Toledo, and C. I. Grant, Bradbury; discussion; music: The Best Cattle on the Farm, Charles I. Brown, Neoga; discussion; adjourn for dinner.

Thursday afternoon, 1:30 o'clock.

Call of meeting to order by the president; music: Public Roads and What We Shall do for Them, F. D. Voris, Neoga, and Elias W. McPherson, Trilla; discussion: Rotation of Crops, J. M. Hollingsworth, Ridge Farm, president of the Edgar County Farmers' Institute; discussion; music: Market Gardening, Nat Neece, Greenup; discussion; adjourn to 7 p. m.

Thursday evening, 6:30 o'clock.

Music; invocation, Rev. Mrs. Stevenson; music; recitation, Ollie Bowman and Alvah Huffman; music; Relation of Schools to the Farming Interests, Morton Brewer; general discussion; recitation, Lulu Delp and Mary Pennington; music; essay, School Observation Work as Related to the Farm, Bonny Brady; recitation, Dora Ward and Ethel Morrison; essay, The Necessity for School Libraries, Grace Duenning; music; benediction, Rev. J. B. Howard.

P. G. Bowman.

Friday, January 27, 9:00 a. m.

Meeting called to order by president; prayer, Rev. D. D. Judson, Toledo; music: Waste on the Farm, John Cunningham, Greenup; discussion: Apiary, Clinton Swickard, Bradbury; William Walker, Woodbury, and J. S. Norris, Neoga; discussion; music: How to Keep the Boys on the Farm, C. C. Baker, Montrose, and Eli Bowers, Casey; discussion: Farmers' Institute Work, D. H. Shank, Paris; adjourn to 1:30 p. m.

Friday afternoon, 1:30 o'clock.

Call to order by president; music: Fruits on the Farm, Prof. Henry Augustine, Normal; discussion: Floriculture, Miss Lizzie Tinkey, Janesville, and Robert Fulstone, Neoga; discussion; music: Capital and Labor, Rev. J. W. Scoles, Martinsville; discussion: Domestic Economy, Mrs. Eli Delp, Vevay Park, and Mrs. W. W. Park, Woodbury.

Officers for the ensuing year: President, P. J. Bowman, Greenup; secretary, A. H. Yanaway, Toledo; treasurer, Mrs. Mollie E. Kridge, Toledo; average daily attendance, 400; cost of institute, \$48.38.

DEKALB COUNTY FARMERS' INSTITUTE.

The annual meeting was held at DeKalb, February 1-2, 1899.

Officers.—President, H. B. Gurler, DeKalb; secretary, B. F. Wyman, Sycamore.

Program —Wednesday, February 1.—

Morning Session.—10 o'clock.

Prayer, Dr. Crane; address of welcome, Mayor Townsend; Small Farms More Profitable Than Large Ones, Warren Weeden, Mayfield; discussion.

Afternoon session.

The Future of Horse Breeding, J. H. Ryan, V. S., Sycamore; discussion; Agricultural Education, Prof. Davenport-Dean and Director of Agriculture, Champaign, Ill.; discussion; Talk on Cuba, W. H. O'Neill.

Wednesday evening.

Piano solo, Miss Alberta Hills; bass solo, George Dutton; talk on educational lines, Prof. J. N. Adey; vocal solo, Marie Garvey; recitation, Miss Emily Waterman; whistling solo, Miss Zaida Brown, DeKalb; recitation, Miss Helen Watson song, male quartette; electricity illustrated, John Glidden, DeKalb; recitation, Miss Fannie

H. B. GURLER.

Ahern; recitation, Sanford Holcomb; recitation, Marie Garvey; vocal solo; Miss Huldah Kylen, DeKalb.

Thursday, February 2.—Morning Session.—9:30 o'clock.

Feeding for Profit, Prof. Davenport; discussion; Milk Shipping, S. Hill, Chicago, Secretary Milk Shippers' Union; discussion.

Afternoon session, 1 o'clock.

Mistakes in the Dairy, H. B. Gurler, DeKalb; discussion; Poultry on the Farm, F. M. Munger, DeKalb; discussion; Horticulture, With Object Lessons in Grafting, J. L. Hartwell, Dixon, President Northern Illinois Horticultural Association; Discussion.

Officers elected for the ensuing year. President, H. O. Whitman, Sycamore; secretary and treasurer, B. F. Wyman, Sycamore.

Average daily attendance 300; cost of institute \$52.50.

B. F. WYMAN.

DE WITT COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Clinton. January 11, 12, 13, 1899.

Officers.—President, C. Y. Miller, Marora; secretary, Frank W. Cline, Clinton.

Program.—First day, January 11, morning session.—10 o'clock.

Prayer, Rev. W. A. Hunter; music, Leggett Orchestra, Wapella; address of welcome, W. S. Harrold, Wapella; response, President C. Y. Miller, Marora; report of Committee on Program, C. M. Hartsock; report of Committee on Finance, Samuel Newell; music, Leggett Orchestra, Wapella; How to Raise Corn, by DeWitt county farmers, led by Isaiah Jackson, Clinton; H. C. Cline, Clinton; J. H. North, DeWitt; Otis Haskins, Weldon.

Afternoon, 1:30 o'clock.

Music, Autoharp duet, Misses Olive May, Flora Fenner; recitation, Miss Myra Rundle, Clinton; address, Horticulture, Henry Augustine, Normal; general discussion, led by J. L. Morrow, Clinton; music, vocal solo, Eddie Day; address, Clover Culture, Fred H. Rankin, Athens; general discussion, led by James Watson; paper, Miss Kate Weld; address, Points on Pork, J. H. Rankin; general discussion, led by James M. Jeffreys, E. L. Hoffman.

Evening, 7:30 o'clock.

Music, piano duet, Grace and Lorin Nicolai; paper, The Farmers in History, Charles R. Adair, Clinton; prize recitations by DeWitt county farmer boys and girls under 16 years of age; first prize \$5, second \$3, third \$2; music, vocal duet, Miss Kate Carey, Ona Hull.

Second day, January 12, 10 a. m.

Prayer, Rev. Father Dooling, Clinton; music, piano solo, Mrs. W. A. Hunter; paper, Curing Pork, Mrs. J. H. North, DeWitt; general discussion, led by John O'Connel, Leroy; music, vocal solo, Miss Mabel Watson, Clinton; paper, How to Make Farming Profitable, Hon. W. H. Oglevee, Clinton; general discussion, led by Findley Borders, W. S. Harrold.

Afternoon, 1:30 o'clock.

Music, piano duet, Mrs. Lola Kinnamon, Miss Della May; lecture, Domestic Economy, Mrs. Nellie S. Kedzie, Peoria; music, vocal solo, Miss Maude Wheeler; recitation; address, Benefits Derived from Organization and Cooperation of Farmers, Alex Keady, Normal; general discussion, led by Hon. John Cusey, Farmer City; Cattle and Stock Raising for Illinois, A. P. Grout, Winchester; general discussion, led by J. M. Cline, Clinton, Warrick Jones, Midland City.

Evening, 7:30 o'clock.

Music, Rohm's orchestra; recitation, Margaret Jordan, Wapella; address, A Problem of the Farmer, E. B. Bentley, principal Clinton schools; music, vocal solo, Mrs. W. C. White; recitation, Miss Ida Scott; address, General Talk to Farmers.

Third day, January 13, 10 a. m.

Prayer, Rev. E. A. Gilliland; music, piano solo, Miss Ollie Day; paper, Width of Public Highways, N. M. Barnett; general discussion, O. C. Ives, Wapella, I. S. Swearingen, Wapella; music, Johnson Male Quartette; paper, Miss Trophy Wright; song, Gertrude Colwell; recitation, Miss Ella May; paper, If I Were a Farmer, Dr. A. E. Campbell.

Afternoon, 1:30 o'clock.

Music, piano solo, Miss Mabel Jones; recitation, Miss Mattie Barclay; music, vocal solo, Miss Flossie Hoyt; prize essays by DeWitt county farmers' wives; recitation, Miss Icie Foley; music, vocal solo, J. W. McPherson; auction sale of exhibits.

Officers elected for the ensuing year, president, Finley Borders, Clinton; secretary, Frank W. Cline, Clinton; treasurer, Chas. Walker, Clinton.

Average daily attendance 200, cost of institute \$237.14.

DOUGLAS COUNTY FARMERS' INSTITUTE AND CONGRESSIONAL FARMERS' INSTITUTE FOR THE THIRTEENTH DISTRICT.

ARCOLA, ILL., Jan. 19, 20, 21, 1899.

Officers.—Director, S. Noble King, Bloomington.

Officers.—Director Thirteenth district, S. Noble King, Bloomington; president, Joseph Hemingway, Arcola; secretary, Joseph Coombe, Arcola.

Program.—Thursday, Jan. 19, 1899

Morning session, 9 o'clock.

Music, by the Arcola Band; prayer, Rev. Clemens; song by the quartette; 9:15 to 9:45—paper, Cattle Feeding for Profit, John G. Imboden, Decatur, Ill. Brief remarks by practical cattle feeders, Wm. Iles, Camargo; F. A. McCarty, Filson; Malden Jones, Bourbon; C. M. Culbertson, Newman. 11:00 to 11:40, Disadvantages and Hindrances to Farmers, J. F. Bouck, Arcola; remarks and questions; 12:00, adjournment.

Afternoon session, 1:00 o'clock.

1:00.—Music by the band; 1:10, Song, quartette; 1:20 to 2:00, paper, Preservation of Soils, Prof. B. F. Staymates, Clinton, Ill.; 2:00 to 2:45, paper, Sheep, R. M. Bell, Decatur; remarks by sheep raisers, M. D. Bartholomew, John, Vellum, J. B. Arenhalt, Joseph, Hemmingway, and others; 2:15 to 3:30, paper, Small Fruits, J. W. C. Gray, Atwood; 3:30 to 4:00, My Experience with Strawberries, J. G. Bowman, Arcola; remarks and questions; adjournment.

Evening session.—7:30, entertainment, Arcola public schools.

Friday, January 20, 1899.—Morning session, 10:00 o'clock.

Music by band; song, quartette; prayer, Rev. J. W. Eckman; 9:10 to 9:40, paper, A Week's Routine in a Farmer's Home, Miss Maude Hall; 9:40 to 10:10, paper, Butter Making, Mrs. Wm. Iles, Camargo; 10:10 to 11:00, Experience with Poultry, Mrs. W. B. Chandler, Bourbon; Mrs. George Pfeiffer, Arcola; Mrs. Wm. Iles, Camargo; 11:00 to 11:30, paper, Potatoes—Varieties and Culture, L. S. Spencer, Pesotum; 11:30 to 12:00, question.

Joseph Coombe.

Afternoon session, 1:00 o'clock.

Music, by band; song, quartette; 1:15 to 2, paper, Domestic Economy, Mrs. Nellie S. Kedzie, Peoria, Ill.; 2:00 to 2:30, paper, Health by Good Living, Mrs. S. Noble King, of Bloomington, Ill.; organization of cooking club; 3:00 to 3:30, paper, What can Be Done to Lessen the Toils of a Farmer's Wife and Make Home More Attractive, Mrs. F. A. McCarty, Filson, Ill.; 3:30 to 4:00, paper, Horse Breeding, George Williams, Athens, Ill.; adjournment; 7:00, music, song.

Evening session.—Success on the Farm, Fred Rankin, Athens, Ill.

Saturday, January 21, 1899, morning session, 9:00 o'clock.

9:00, music by the band; song; prayer, Rev. Wm. Luce; paper, Illinois Farmers' Institute, Col. Charles F. Mills, Springfield; 9:45 to 10:30, paper, The Composition and Nutritive Value of Foods, Prof. H. S. Grindley, Champaign; 10:30 to 11:15, paper, Stalks as Fertilizers and Different Depths of Cultivation of Corn at the University of Illinois 1897 and 1898, Prof. P. G. Holden, Champaign; 11:15 to 11:45, Importance of Good Seed, James O. Toland, Humboldt; remarks and questions; adjournment.

Afternoon session, 1:00 o'clock.

1:00, music by band; song; 1:10 to 1:20, election of officers; 1:20 to 1:45, paper, Points on Pork, Fred Rankin, Athens, Ill.; remarks, W. B. Chandler, Bourbon, Samuel Duncan, Arcola, and others; 2:00 to 4:00, sale of products; adjournment.

Officers elected for the ensuing year.—President, J. F. Brock, Arcola; secretary, Joseph Coombe, Arcola, treasurer, John Burky, Arcola.

Average attendance, 300; cost of Institute, \$120.

DuPAGE COUNTY FARMERS' INSTITUTE.

Annual meeting held at Wheaton January 25-26, 1899. Officers: President, C. D. Bartlett, Bartlett; secretary, Royal T. Morgan, Wheaton.

Program—Wednesday, January 25, 10 o'clock a. m.

Prayer, Rev. D. M. Tompkins; address of welcome, Mayor J. S. Peironnet; response, C. D. Clark; president's address, C. D. Bartlett; secretary's report, R. T. Morgan; treasurer's report, James McKee; recitation, Miss Grace Stover; Practical Corn Culture, illustrated, James Riley, Ind.; discussion, D. D. Barnard, Lisle; E. B. Howe, Wheaton.

Afternoon session, 1:15.

Vocal music, Edith Hope, Waterman; Mistakes on Our Dairy Farms, H. B. Gurler, DeKalb; discussion, George Fischer, Addison; E. J. W. Dietz, Downer's Grove; recitation, Miss Grace Stover; Farmers' Prospects in the Near Future, Mrs. Sara Steenberg, Chicago; discussion, Mrs. M. Slusser, Downer's Grove; George Patrick, Wheaton.

Thursday, January 26, 9:30 a. m.

Music, Addison String Band; prayer, Rev. George Wood; Drainage and Country Roads, S. T. K. Prime, Dwight; discussion, William Hammerschmidt, Lombard; H. C. Middaugh, Clarendon Hills; recitation, Mrs. Edith Bartlett, Chicago; What Shall We do with Our Feed, M. B. Lester, River Grove; song, The Farmer's Home, Addison chorus; Feeding Cattle and Pigs, W. F. Franzen, Bensenville; Commercial Side of Dairying, D. W. Wilson, Elgin; discussion, Charles Pierce, Meacham; Will Patrick, Swift.

Afternoon session, 1:15.

Music, Addison String Band; Sanitary Management of Swine, James Riley, Indiana; discussion, H. G. Savage, Warrenville; John Christie, Wheaton; Diseases of Domestic Animals Communicable to Man, Dr. Fry, Naperville; The Horse, Eugene Coleman, Wayne; address, ex-Governor Hoard, Ft. Atkinson, Wisconsin; recitation, Mrs. Edith Bartlett, Chicago; song, The Farmer's Joy, Addison chorus; Home Making, Mrs. W. B. Lloyd, Glen Ellyn.

Evening session, Thursday, January 26, 7:30.

Music, Wheaton orchestra; recitation, Mrs. Edith Bartlett, Chicago; Sanitation of the Home, Dr. C. W. Oleson, Lombard; address, Hon. C. Porter Johnson, Chicago; music, Wheaton orchestra; Our Native Song Birds, Hon. John W. Leonard, Wheaton; vocal music, Edith Hope Waterman, Wheaton; recitation, Mrs. Edith Bartlett, Chicago; Choosing the Best Things, Mrs. Lillian E. Ballou, Wheaton; music, Wheaton orchestra.

Friday, January 27, 9:30 o'clock a. m.

Music, J. McAuliffe's orchestra, Chicago; prayer, Rev. F. V. Moslander, Wheaton; Rural Schools, A. D. Curran, Yorkville; The Farm and the School, Charles Farr, Chicago; recitation, Mrs. Edith Bartlett, Chicago; What Common Schools Have Done for Our Country, R. T. Morgan, Wheaton; music, J. McAuliffe's orchestra, Chicago; Books, Jona Piper, Wisconsin; recitation, Miss Grace Stover.

Afternoon session, 1:15.

Music, J. McAuliffe's orchestra, Chicago; election of officers; miscellaneous business; Pioneer Days in Illinois, W. R. Hench, Dundee; address, Prof. Marvin Quackinbush; The Sunny Side of a Farmer's Life, David Givler, Naperville; report of superintendents of exhibits; music, J. McAuliffe's orchestra, Chicago.

Officers elected for the ensuing year: President, C. D. Bartlett, Bartlett; secretary, Royal T. Morgan, Wheaton; treasurer, James W. McKee, Eola; average daily attendance, 500; cost of institute, \$124.75.

**EDGAR COUNTY FARMERS' INSTITUTE AND CONGRESSIONAL
FARMERS' INSTITUTE FOR THE NINETEENTH DISTRICT,
PARIS, ILLINOIS, JANUARY 17, 18, 19, 1899.**

Officers Director for the Nineteenth Congressional District, D. H. Shank, Paris; president Edgar County Institute, J. M. Hollingsworth, Ridge Farm; secretary, Mrs. Mary Fell, Warrenton.

Program—Tuesday, January 17, 1899.

Morning session, 10 o'clock.

Music; prayer; welcome address, Mayor D. D. Huston; address, The Nineteenth District, Director D. H. Shank, response, Robert C. Morris, Olney; music; president's address, J. M. Hollingsworth; report of secretary, Mrs. Mary Fell; The National Farmers' Congress, J. P. Jones, Coles county.

Afternoon session, 1:30 o'clock.

Music; The Farmer's Orchard, H. Augustine, Normal; discussion; Some Experiences in the Care and Cultivation of an Old Orchard, H. A. Aldrich, Neoga; discussion; music; paper, topic of his own selection, B. O. Curtis, Paris; discussion.

Evening Session, 7:30 o'clock.

Music; address, The Relation of the Farmer to the City, George N. Parker, Robinson; music; address, Fellowship Among Farmers, James R. Miller, grand secretary I. O. O. F., Springfield; music.

Wednesday, January 18, 1899, 8:00 a. m.

Meeting of delegates and workers for reports and discussion.

9:30 a. m.

Music; prayer; Condensed Agricultural Products, W. J. Jutkins, Effingham county; discussion; The Farmers' Home, Mrs. Rose Carr, Lis; discussion; music; address, The Illinois Farmers' Institute, Superintendent Charles F. Mills, Springfield.

Afternoon session, 1:30 o'clock.

Management of Swine, William Wilson, Crawford county; W. E. Neal, Lawrence county; discussion; A Renter's Corn Crop, L. H. Jones, Garland; Corn Growing, Prof. P. G. Holden, Urbana; discussion.

Mrs. Mary Fell.

Women's section.

Poultry on the Farm, Mrs. Rose Carr, Lis; discussion; Butter Making, Mrs. Humrichouse, Edgar; discussion; Bread, a farmer's wife, discussion.

Evening session, 7:30 o'clock.

Music; address, Our Agricultural College, Prof. P. G. Holden, State University; music; address, Domestic Science, Mrs. Nellie S. Kedsie, Bradley Polytechnic Institute, Peoria; music.

Thursday, January 19, 1899.

Morning session 9:30 o'clock.

Music; prayer; Soil Study and Improvement, Prof. P. G. Holden; discussion; The Sheep Industry in Edgar County, W. H. Morris, Warrenton; Richard Pessant, Sanford; What Shall We Teach Our Girls, Mrs. Nellie S. Kedsie, Peoria.

Afternoon session, 1:30 o'clock.

Music; Feeds and Feeding, James Colvin, Richland county; discussion; Road Improvement in Edgar County, highway commissioners and others; music; reports of committees; election of officers; adjournment.

Officers elected for the ensuing year: President, J. M. Hollingsworth, Ridge Farm; secretary, Mrs. Julia Tate, Paris; treasurer, C. D. Smith, Grandview; average daily attendance, 600; cost of institute, \$70.00.

EDWARDS COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Albion November 29, 30, 1899.

Officers.—President, Albert Fewkes, Albion; secretary, Walter Rigg, Albion.

Program.—Tuesday morning session, 9:30 o'clock.

Music; prayer, Rev. J. L. Hudgins; appointment of committees; address of welcome, Mayor Brosman; response, L. N. Beal, Mt. Vernon, Ill.; report of committee on organization.

Afternoon session, 1:00 o'clock.

Poultry Raising, Mrs. R. A. Judy, Long Creek, Ill.; discussion, E. E. Ebricht; Horticulture in Southern Illinois, L. N. Beal; discussion, Henry Fisher, Albion, Ill.

Evening session, 7:00 o'clock.

Music; prayer, Rev. F. B. Hines; lecture, The Mental Development of Children, Dr. Daniel Berry, Carmi, Ill.; music.

Wednesday morning session, 9:30 o'clock.

Prayer, Rev. W. H. Pool; Sheep Husbandry, R. M. Bell, Decatur, Ill.; President Illinois Sheep Breeders' Association; discussion, J. W. Barber; Bacteria in Agriculture, Prof. T. J. Burrill, Champaign, Ill.; discussion, Dr. A. A. Benton.

Afternoon session, 1:00 o'clock.

The Parents' Relation to the Public School, S. S. Stahl; discussion, Mrs. Annie J. Chestnut; Clover Culture, Dr. Daniel Berry, Carmi, Ill.; discussion, Morris Colyer.

Officers elected for the ensuing year.—President, Albert Fewkes, Albion; secretary, Walter Rigg, Albion; treasurer, John Michels, Albion.

Average daily attendance, 125; cost of institute, \$50.

EFFINGHAM COUNTY FARMERS' INSTITUTE.

Annual meeting held at the courthouse in Effingham, Ill., January 24 and 25, 1899.

Program, Tuesday, January 24, 10 A. M.

Music; prayer; address of welcome, Mayor L. Burrell; response, President Peter Beever; music; secretary's report; treasurer's report.

Tuesday, January 24th, afternoon session, 1:00 o'clock.

Music; address, Farm Dairying, W. J. Jutkins, Shumway, Ill.; discussion; music; address, Building Up Worn Out Fields, R. C. Morris, Olney, Ill.; discussion; music; paper, Home Economy, Mrs. M. M. Gloyd; discussion; paper on Poultry, Henry Knudson, Effingham; Institute Work, D. H. Shank, Paris, Ill.; J. H. Loy, Effingham.

Wednesday, January 25th, morning session, 9 o'clock.

Music; prayer; paper, Home Adornment, Mr. Handy Loy, Watson; paper on



Peter Beever, President.

Poultry, J. H. Loy, Effingham; discussion; address, Scientific Farming, R. C. Morris, Olney; discussion; music; address on Cattle, N. Gilmore, Edgewood.

Wednesday, January 25th, afternoon session, 1:00 o'clock.

Music; address on General Farm Products, R. C. Morris, Olney, Ill.; discussion; paper on Corn Culture, S. P. Gamble, Shumway; discussion; paper on Floriculture, Miss Gertrude Austin; discussion.

Officers elected for the ensuing year.—President, Peter Beever, Shumway; secretary, G. W. Hirtzel, Shumway; treasurer, G. W. Hirtzel, Shumway.

Average daily attendance, 400; cost of institute, \$57.60.

G. W. Hirtzel, Secretary.

FAYETTE COUNTY FARMERS' INSTITUTE.

No institute was held the past year.

Officers elected for the ensuing year.—President, Chas. E. Cox, Vandalia; secretary, Geo. F. Houston, Vandalia, treasurer, R. T. Higgins, Vandalia.

FORD COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Piper City, January 12-13, 1899.

Officers.—President, R. T. Sowers, Piper City; secretary H. S. Carpenter, Piper City.

Program.—Thursday, January 12.—Morning session.—9:30.

Music, Opperman's Cornet Band; prayer, Rev. Geo. E. Young, of Piper City; welcome address, H. P. Beach, of Piper City; response to address of welcome, V. G. Way, of Procter; Presidents annual address, T. J. Sowers, of Paxton; arrangement of exhibits.

Afternoon session, 1:30.

Music, Opperman's Cornet Band; prayer; address, Hogs for Profit, Geo. Horner; discussion, Henry Benson, Kempton, and Daniel Martin, Paxton; address, Farm Drainage, F. A. Warner; discussion, L. T. Bishop, Piper, Hugh McCormick, Clarence.

Evening session, 7:30.

Music, Opperman's Cornet Band; prayer, Rev. J. S. White, of Piper City; "What Constitutes a Beautiful Country Home," Miss Ruby Steen, of Paxton; address, How Shall the Nation Secure Educated Mothers, Mrs. S. D. Culbertson, of Piper City; address, The Farm as the Source of Supply of the Best Blood of the Nation, H. P. Beach, of Piper City.

Friday, January 13, morning session, 9:30.

Music, Oppermann's Cornet Band; prayer, Rev. Wm. B. Allison, of Piper City; Domestic Economy, Mrs. Kedsie, of the Bradley Institute, Peoria; address, Is Horse Raising Profitable at this Time? F. W. Beardsley, of Gibson City; discussion, J. W. Miner, Gutrie, and Jos. Burger, Piper; address, Beef Cattle, J. N. Bordurant; discussion, D. A. Taylor, Gibson City; address, Dairy Cattle, Geo. Essington; discussion, J. Weaver, Loda.

Afternoon session, 1:30.

Music, Opperman's Cornet Band; prayer; address, to be selected, E. S. Fursman, of El Paso; address, Corn as the Main Crop of Ford County, J. H. Beagley; discussion, Geo. Minear, Piper, and A. Anderson, Kempton; address, Clover, V. G. Way, of Procter; discussion, Geo. Arnott, Paxton, and F. W. Johnson, Paxton.

Officers elected for the ensuing year: F. W. Beardsley, Gibson City; secretary, J. H. Beagley, Sibley; treasurer, D. A. Taylor, Gibson City; average daily attendance 300; cost of institute, \$94.48.

FRANKLIN COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Benton, November 15-16, 1899. Officers: President, J. M. Jones, Benton; secretary, W. H. Dorris, Benton.

Program.—Agriculture.

Wheat, M. R. Holcomb; corn, Albert Hill; oats, F. L. Rea; castor beans, John Gant; tobacco, Wesley Dorris; clover, S. W. Swain; grasses, J. W. Hill; potatoes—sweet, Irish, W. L. Moore.

Horticulture.

Orchard fruits, W. H. Carner; small fruits, Charles Dixon.

Live stock.

Swine, W. C. Link; horses, Thomas Neal; cattle, J. T. Chenault; sheep, Dr. Z. Hickman; poultry, William Ruemmler; bees, Julius Linden.

Miscellaneous.

Public roads, M. P. Clayton; marketing farm products, A. L. Klank; machinery and tools, Wm. Hutchinson; commercial fertilizers, Capt. C. Moore.

An address to the farmers was delivered on Tuesday evening, Nov. 15, in the opera house, by Prof. J. C. Blair, of the University of Illinois, at Champaign. On Wednesday morning L. N. Beal, of Mt. Vernon, director of the 20th district delivered an address before the institute. General discussion of the topics on the program were had after each paper or address.

Officers elected for the ensuing year: President, William Hutchinson, Benton; secretary, George Trout, Benton; treasurer, Carol Moore, Benton; average daily attendance not reported; cost of institute, \$20.00.

FULTON COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Lewistown January 10-11, 1900.

Officers: President, John Prickett, Lewistown; Secretary, H. B. Rice, Lewistown.

Program, Tuesday, 10 a. m.

Address of welcome; response by the President; address, Benefits of Farmers' Institutes, Hon. G. A. Willmarth, Vice-President of State Farmers' Institute.

1:30 p. m.

Address, The Farmer's Garden, T. B. Harben, Lewistown; address, Economic Poultry Raising, Ira Cottingham, Eden, Peoria county.

7:30 p. m.

Address, Agricultural Education, Prof. Eugene Davenport, Director of the Illinois Experiment Station; address, The Farm the Centre of Interest in the Rural School, M. L. Ollensvang, Urbana, Ill.

Wednesday, 10:30 a. m.

Music; prayer; address, Better Live Stock and How to Get It, Prof. Davenport; discussion; music; paper, Methods of Promoting the Fertility of the Soil, H. B. Rice, Lewistown; discussion; Question box.

1:30 p. m., ladies' session.

Music; prayer; address, Household Economics, Mrs. H. M. Dunlap, Savoy, Ill.; discussion; music; paper; Question box.

Officers elected for the ensuing year: President, C. C. McCutchen, Norris; Secretary, H. B. Rice, Lewistown; Treasurer, Geo. Shawver, Lewistown.

Average daily attendance, 273. Cost of institute, \$68.64.

John Prickett, Lewistown.

GALLATIN COUNTY FARMERS' INSTITUTE.

No institute was held the past year.

Officers for the ensuing year: President, H. Ives, Shawneetown; Secretary, George Hanlon, Shawneetown; Treasurer, W. A. Peoples, Shawneetown.

GREENE COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Greenfield, November 30 and December 1, 1899.

Officers: President, C. W. Hoinbeck, Rockbridge; Secretary, J. T. Callaway, Greenfield.

Program, Wednesday morning, 9 o'clock.

Music; prayer, Rev. J. S. Smith; address of welcome, Mayor F. A. Clement; response, J. K. Farrelly, Daum.

Afternoon, 1:30.

Music; The Most Profitable Horse to Raise, His Breeding and Care, J. K. Farrelly, Daum; Donald Simpson, Carrollton; Discussion, Jasper Johnson, Joseph Madden, J. H. Rives; Points on Pork, Fred H. Rankin, Athens; discussion, Geo. W. Witt, Sylvester Melvin, John Allen, E. K. Metcalf; Rotation of Crops, Maj. E. A. Giller, White Hall; discussion, E. V. Baldwin, N. J. Andrews, T. T. Ford, S. W. Johnses.

Evening, 7:30.

Music; recitation, Miss Bonnie Boring; music, duet; Fun on the Farm, H. G. Russell; recitation, Miss Belle Ash; music.

Thursday morning, 10 o'clock.

Music; Poultry, D. T. Heimlich, Jacksonville; discussion, Mrs. J. F. Bertman, Wm. G. Allen, Geo. B. Metcalf, John Clough; recitation, Miss Nellie Wilhite; Corn Culture, E. S. Fursman, El Paso; discussion, Green Driver, A. T. Secor, T. M. Meek.

Afternoon 1:30.

Music; Cattle and Stock Raising for Illinois, A. P. Grout, Winchester; discussion, C. Vanderheyden, Col. W. H. Fulkerson, E. A. Eldred, Sylvester Melvin; recitation, Miss Mabel Cole; Success on the Farm, P. G. Holden, Professor of Agricultural Physics, Champaign.

H. B. Rice, Lewistown.

Evening, 7:30.

Music; recitation, Arnold Tendick, Rockbridge; recitation, Miss Minnie Booth; Twenty Years a Farmer, E. B. Roach, Rockbridge; recitation, Miss Willie Thorpe; music.

Officers elected for the ensuing year: President, A. E. Wilson, Carrollton; Secretary and Treasurer, Ves. Veddeo, Carrollton.

Average daily attendance, 300. Cost of institute, \$52.78.

GRUNDY COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Morris December 14, 15, 1896.

Officers.—President, Willis A. Clark, Carbon Hill; secretary, R. H. Dewey, Mazon.

Program.—Wednesday forenoon.

Music; prayer, Rev. Prescott, Morris; music; Rotation of Crops, Geo. E. Wheeler, Mazon; discussion, N. G. Newport, Wauponsee; Geo. Miller, Coal City; Lyman Hawley, Gardner, report of Delegates to State Institute, E. W. Walworth, Geo. E. Wheeler.

Afternoon session, 1:30 p. m.

Song, America, audience; prayer, Rev. Lovejoy, Morris; president's address of welcome; respons., Capt. Reardon, Morris; recitation, Miss Anna Hollenbeck, Verona; Fellowship Among Farmers, J. K. Ely, Mazon; discussion, Ray Woods, Gardner; W. S. Finch, Verona.

Ladies' session.—Conducted by Mrs. Clara, A. Harford.

Vocal solo, Rev. E. Newport, Wauponsee; paper What will the Farmer Eat? Mrs. Louise Walley; discussion, Mrs. Rebecca Carpenter, Verona; Mrs. Lola J. Dewey, Mazon; Mrs. J. K. Ely, Mazon; recitation, The Farmer's Wife, Mrs. Geneveive Murray, Mazon; paper, Economy in Housework on the Farm, Mrs. Lizzie A. Hawley, Gardner; discussion, Mrs. Jennie Wheeler, Mazon; Mrs. Elmer Strong, Verona; Mrs. Sarah Woods, Gardner; recitation, Rev. E. L. Newport; paper, The Social Side of Farm Life, Mrs. Geneveive Murray, Mazon; discussion, Miss Dora Weldon, Verona; Mrs. Fannie M. Mulvanie, Wauponsee; Mrs. Clara L. Gorham, Wauponsee;

Willis A. Clark.

Miss Nellie Rose, Mazon. Ten minutes allowed for opening paper; five minutes each for discussion.

Evening, 7:30 P. M.

Music, ladies' quartette; prayer, Rev. Johnson; song; recitation, Miss Mary Glenn, Verona; address, David Ward Wood, Chicago.

Thursday, 10:20 A. M.

Music; prayer, Rev. Tucker, Morris; Clover Culture, Frank Henry, White Willow; discussion, J. N. Woods, Gardner; E. Cryder, Morris; Poultry Raising, G. W. Carpenter, Verona; discussion, Mrs. H. Gorham, Mrs. H. H. Overocker.

Afternoon session, 1:30.

Prayer, Rev. Nylan; music; election of officers; Education of the Farmer, Mr. W. Walley, Morris; discussion, Mary Holderman, G. W. Ridings, N. W. Walsh; music; The Dairy for the Average Farmer, W. W. Hostetter. Thirty minutes will be allowed for each subject—fifteen minutes for the opening paper and fifteen minutes for the discussion of each subject.

Officers elected for the ensuing year.—President, Willis A. Clark, Carbon Hill; secretary, Mrs. Clara A. Harford, Verona; treasurer, Fred Harford, Verona.

Average daily attendance, 100; cost of Institute, \$44.75.

R. H. Dewey.

HAMILTON COUNTY FARMERS' INSTITUTE.

The annual meeting was held at McLeansboro December 8-9, 1898. Officers: A. J. Yates, president, McLeansboro; secretary, Ed. H. Bowen, McLeansboro.

Program—Thursday morning.

Music; prayer; address of welcome, L. J. Hale; response, President A. J. Yates; reading of the minutes, Ed. H. Bowen, secretary; report of treasurer, John Judd, treasurer; reports of committees.

Afternoon.

Song, Hamilton quartet; Diseases of Farm Animals, Donald McIntosh, Professor of Veterinary Science; discussion; Drouths, Causes and Prevention, Hon. John P. Stelle; discussion; election of officers for 1899.

Evening.

Song, Miss Effie Yates; recitation, Prof. James Barrow; The Germ Theory, as it Relates to Beasts, Dr. J. J. Hassett; discussion; paper, Mrs. C. N. Beal; declamation, Miss Bertie Fry; recitation, J. Wilson Jones; song, Hamilton quartet.

Friday morning.

Music; prayer; Stock Peas, John C. Hall; discussion; paper, L. N. Beal; discussion; declamation, Miss Ollie Mitchell; declamation, Miss Mamie Daily; song.

Afternoon.

Music, Hamilton quartet; lecture, Numerous Insect Enemies of the Farm, Prof. L. A. Forbes, State Entomologist; discussion; Charm of Country Life, Miss Jessie Snyder; discussion.

Officers elected for the ensuing year: President, M. A. Hooker, McLeansboro; secretary, Ed. H. Bowen, McLeansboro, treasurer, John C. Hall, McLeansboro; average daily attendance, 334; cost of institute \$47.93.

HANCOCK COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Carthage November 15-16, 1898. Officers: President, William A. Moore, Elvaston; secretary, E. C. Sinele, Carthage.

Program—Tuesday afternoon, 1 o'clock.

President's address; Work and Mission of Farmers' Institutes, F. A. Willmarth, Seneca; District Institute Work, G. W. Dean, Adams county; Berries, Thomas McCubbin, Carthage; Pears and Plums, C. N. Dennis, Hamilton.

Wednesday morning, 9 o'clock.

Our County Fair, Hon. O. F. Berry, Carthage; G. W. Shinkle, Denver; Coöperation in Farmers' Institutes, S. N. Black, Clayton; Peaches, H. D. Brown, Hamilton.

1 o'clock p. m.

Election of officers and other business; Kinds of Culture for Indian Corn, A. D. Shamel of the University of Illinois; Grapes, Emile Baxter, Nauvoo; Swine Breeding, G. A. Willmarth, Seneca; question box will be open throughout the session.

Officers elected for the ensuing year: President, W. B. Marvel, Carthage; secretary, Walter VanZile, Carthage; treasurer, C. N. Dennis, Hamilton; average daily attendance, 125; cost of institute, \$31.45.

HARDIN COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Elizabethtown, December 15-16, 1898. Officers: President, M. T. Price, Elizabethtown; secretary, Edward Schneider, Elizabethtown.

Program.—Thursday, December 15, morning session, 10:30.

Song by institute; invocation, Rev. A. G. Procter; address of welcome, J. Q. A. Ledbetter; response, M. L. Tyler; song.

Afternoon session, 1:00.

Farmers' Institutes, S. N. Beal, Mt. Vernon; song; The Future of Agriculture in Southern Illinois, Ed. Schneider; song; Diversity of Crops, J. A. Oxford; music.

Evening session, 7:00.

Song; Why a Farmer's Boy Should Get an Education, Mrs. F. N. Beal; music, recitations, etc., by pupils of Elizabethtown school; Our Country Schools, T. G. Jackson; song.

Friday, December 16, morning session, 10:00.

Music; prayer; address by John P. Stelle, Dahlgreen, Illinois; song; Jersey Cattle, Capt. L. F. Twitchell; music.

Afternoon session, 1:00.

Music; The Orchard, S. T. Maxey, Mt. Vernon; song; election of officers, reports of committees, etc.; music.

Evening session, 7:00.

Music and recitations by pupils of Elizabethtown school; Good Roads; song; Our Poultry Interests; music; dismissal.

Officers elected for the ensuing year: President, John Tyler, Cave-in-Rock; secretary, T. J. Jackson, Elizabethtown; treasurer, Martin Eichhoon, Elizabethtown; average daily attendance, 60; cost of institute, \$50.00.

HENDERSON COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Oquawka, December 1-2, 1898. Officers: President, T. W. Baird, Biggsville; secretary, H. W. Stewart, Biggsville.

Program.—December 1, 1:30 p. m.

Song, by J. W. Gordon; address of welcome, Atty. Safford; response, W. H. Stewart; remarks, Pres. Baird; Education of Farmers, State Vice President, G. A. Willmarth; The Farmer's Institute, State Superintendent C. F. Mills, read by Supt. Mace; Talk, by B. H. Martin; Farm, Dairy and Factory, discussion by J. B. Lant, S. M. Reed and Prof. McClanahan; Corn Culture, J. Cecil Brook; remarks, and exhibition of corn, by Jas. B. Lant; The Farmer Boy, Senator G. W. Dean.

Evening session under charge of Prof. Russel.

December 2, 10:00 a. m.

Invocation, by Rev. Anderson; piano solo, Pleasant Wiegand; The Farmer Boy, Senator G. W. Dean; Ove Acre for a Farm, Mr. Dennis, delegate from Hancock county.

Afternoon, Mrs. Cowden presiding.

Topics of the Farmer, S. M. Reed; The Farmer's Wife, Mrs. J. R. Foster; The Farmer and the Single Tax, W. T. Weir; recitation, Nora Lyons, Biggsville; Breadmaking, Mrs. Finch, Terre Haute, read by Mrs. Lant; piano solo, Miss Purcell, Oquawka; Our Public Schools, County Superintendent S. E. Mace.

Officers elected for the ensuing year: President, H. W. Stewart, Biggsville; secretary, J. M. Fort, Stronghurst; treasurer, J. Cecil Brook, Olena; average daily attendance, 125; cost of institute, \$76.82.

HENRY COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Osco, January 24-25, 1899.

Officers: President, W. Ringle, Osco; Secretary, D. O. Hinman, Cambridge.

Program—Wednesday, January 25, 1899:
morning session.

Dairy on the Farm, Mrs. Ben Brown, Cambridge; Poultry on the Farm, J. S. Terrey, Osco; Farm Insurance, Mahlan Love, Orion.

[Afternoon session.

Corn Culture, Henry Bester, Osco; Clover Culture, Lloyd Z. Jones, Galva; Mutual Telephone, from Farmers Standpoint, Stromberg & Carlson, Chicago; W. S. Colby, Atkinson.

Evening session

Music; recitation, Mrs. J. J. Hadley; Reminiscences of Pioneer Farm Life in Henry County, Luman Woodward. Most Profitable Cow to Raise—Holstein, David Hadley, Osco; Jersey, Bert Norton, Cambridge; The Most Profitable Horse to Raise, A. J. Sederberg.

Tuesday, January 24, morning session.

Call to order; music by quartet; prayer, Rev. Wm. Purce; address of welcome, Wm. Ringle; response, Dan Kelcher; appointment of committee; election of officers; Small Fruit Culture on the Farm, Eli Corbin, Carbon Cliff; Chas. Malcolm, Cambridge.

Afternoon session.

Cattle Feeding, G. A. Carter, Otis Hoyt, Geneseo; Most Profitable Hogs to Raise, M. M. Nash, Osco; Tuberculosis in Cattle, Dr. Lovejoy, State Veterinary.

Evening session.

Wm. Ringle, Osco.

Music; recitation, Miss Tomlinson, Orion; Farm Improvement, Geo. Ferguson, Orion; vocal solo; Education of Farmers' Children, Prof. E. E. Jones, Cambridge; music; What Shall My Occupation Be, Aug. Hoberg, Osco.

Officers for the ensuing year: President, William Stickney, Woodhull; Secretary, Robert Forgy, Woodhull.

Average daily attendance, 200. Cost of institute, \$52.35.

IROQUOIS COUNTY FARMERS' INSTITUTE AND TWELFTH CONGRESSIONAL DISTRICT INSTITUTE, GILMAN, FEBRUARY 15-16, 1899.

Officers of County Institute: President, D. Brumback, Danforth; secretary, G. E. Watkin, Watseka; director of the district, F. L. Mann, Gilman.

Program—Wednesday morning, 10 o'clock.

Prayer; music, quartet; address of welcome, C. N. Saum; response, president; Farm Telephones, C. G. McDougall.

Wednesday afternoon, 1:30 o'clock.

[This session is to be devoted exclusively to the discussion of scientific and practical principles in raising corn. A general discussion is invited and expected.]

Cornet solo, Roy Lawson; address, Prof. P. G. Holden, University of Illinois; song, Miss Katharine Foster; address, E. S. Fursman, El Paso, Ill.

Wednesday evening, 7:30 o'clock.

Music, Imperial band; music, quartet; recitation, Miss Ida Holoh; address, Domestic Science, Mrs. Joseph Carter, Champaign; vocal solo, Miss Katharine Foster; address, F. M. Crangle; cornet solo, Roy Lawson.

Thursday morning, 9 o'clock.

Prayer; election of officers; location of next institute; report of committee on awards; address, Mutual Farm Insurance, C. W. Sprague; General Farm Management, J. H. Snelling.

Thursday afternoon, 1:30 o'clock.

Music, Roy Lawson; address, Care and Treatment of Live Stock, Prof. D. McIntosh, Champaign; music, violin solo, Miss Susie Laub; address, Horticulture, A. Augustine, Normal, Ill.; address, Clover, Fred H. Rankin; question box.

Thursday evening, 7:30 o'clock.

Music, Imperial band; music, quartet; paper, How Shall the Nation Procure Educated Mothers? Mrs. D. Culbertson, Piper City; recitation, Miss Ida Holch; address, Agriculture, and Its Relation to Other Industries, David Ward Wood, editor Western Plowman; music, Miss Susie Laub; music, Roy Lawson.

Officers elected for the ensuing year: President, Charles E. Foster, Watseka; secretary, Monroe Garrison, Watseka; treasurer, H. C. Center, Watseka.

Average daily attendance, 700; cost of institute, \$161.75.

JACKSON COUNTY FARMERS' INSTITUTE AND TWENTY-SECOND CONGRESSIONAL DISTRICT INSTITUTE, CARBON- DALE, NOVEMBER 15-16, 1898.

Officers of County Institute: President, J. C. Scott, Carbondale; secretary, T. C. McKinney, Carbondale; director of district pro tem, L. N. Beal, Mt. Vernon.

Program—Tuesday, November 15, 9 a. m.

Opening exercises; address of welcome, Hon. Hugh Lauder, mayor; response, president's address; Fruit Culture, L. N. Beal, Institute Director 20th Congressional District; Resisting Drouth, Dr. R. C. Morris, Richland county; discussion; Clover as a Fertilizer, Dr. D. Berry, of White county; discussion.

Tuesday afternoon.

Lecture (illustrated by charts) on Insects Injurious to Wheat, by Prof. S. A. Forbes, State Entomologist; Marketing Crops, A. Luke Ralls, president Williamson County Institute; paper, by Mrs. L. N. Beal, of Jefferson county; organization of Domestic Science Association by the ladies.

Tuesday evening.

Musical and literary program, arranged by Prof. James H. Brownlee; address on Farmers' Institute Work, by Hon. John P. Stelle, of Dahlgren, Ill.

Wednesday morning.

What We are Learning Concerning Wheat Culture, by Dr. Berry; discussion; The Stock Pea—How it Obtains its Growth and Enriches the Soil, by Dr. R. C. Morris.

Wednesday afternoon.

The Nutritive Value of Foods for Young, Growing Animals, by Dr. D. Berry; discussion; lecture, Farm and Orchard, Prof. George H. French; The Office of Humus, Electricity and the Lower Forms of Life Renovating and Upbuilding the Soil, by Dr. R. C. Morris.

Officers elected for the ensuing year: President, H. G. Easterly, Carbondale; secretary, W. W. Thomas, Makanda; treasurer, Ed. Worthen, Murphysboro.

Average daily attendance, 100; cost of institute, \$127.73.

JASPER COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Newton January 25-26, 1900. Officers: President, W. E. Barrett, North Muddy; secretary, A. A. Nees, Newton.

Program—January 25, 1900, 8 p. m.

Music, by Yelton's Light Guard Band; address, D. H. Shank, on Institute Work; The Sugar Beet—Can it be Profitably Grown in Jasper County? by A. A. Nees; The Disc Harrow for Oats, and Its Effect on the Soil, L. M. Ebbert, Ebbert; Bee Keeping, G. E. Schackman, Newton; Law, Hon. G. W. Fithian, Newton; Education, Miss Mamie Scoville, Rose Hill; Sorghum, and Its Manufacture, M. A. Colby, Newton.

January 26, 10 a. m.

Corn Fodder and Its Value, Hon. Hale Johnson, Newton; Horticulture, J. W. Honey, Newton, followed by a general discussion of the subject; Education, E. B. Brooks, Newton; Fertilizers, N. S. Scovell, Rose Hill.

Afternoon session.

Address, Two Farms, Dr. R. C. Morris, Olney; Catch Crops, W. C. Gilson, Lis; Butter Making, C. S. Prather, Newton; Horticulture, Henry Augustine, Normal.

Officers elected for the ensuing year: President, William E. Barrett, Lis; secretary and treasurer, A. A. Nees, Newton.

A. A. Nees, Newton.

Average daily attendance, 75; cost of institute, \$22.46.

**JEFFERSON COUNTY FARMERS' INSTITUTE AND TWENTIETH
CONGRESSIONAL DISTRICT INSTITUTE, MOUNT VERNON,
NOVEMBER 17, 18 AND 19, 1898.**

Officers of County Institute: President, L. N. Beal, Mt. Vernon; Secretary, John R. Piercy, Mt. Vernon; Director of District, L. N. Beal.

Program—Thursday, November 17, morning session, 10 o'clock.

Song, Nearer My God; invocation by Rev. H. Clay Yates; song, America; address of welcome by the Mayor of Mt. Vernon; response by S. C. Maxey; song by female quartet from Spring Garden.

Afternoon session, 1 o'clock.

How to Succeed on the Farm, by Sen. J. T. Payne; song; Where I Missed It, by A. Miner, Mt. Vernon; Good Roads, a paper by C. C. Judd, of Hamilton county; song; Beef Cattle, by A. J. Cook, of Opdyke; Jersey Cattle, by Dr. S. Williams, of Spring Garden.

Evening session, 7 o'clock.

Song by Bessie Wilbanks, Mt. Vernon; declamation by Burrell Hawkins of Dix; City and Country Schools, by Prof. J. M. Hill; discussion, J. C. Ellis and O. O. Stitch; song by Bessie Wilbanks; declamation by Burrell Hawkins; song by quartet.

Friday, November 18, morning session, 9:30 o'clock.

Music; invocation by Rev. J. F. Harmon; song; Farm Organization, by A. C. Henderson, of Edwards county; Management of Farmers' Institute, by E. A. Rankin, of Wayne county; song; Illinois Farmers' Institute, by Chas. F. Mills, of Sangamon county; Insects Injurious to Farmers, by Prof. G. H. French, of the Southern Illinois Normal University; music.

John R. Piercy, Mt. Vernon.

Afternoon session, 1 o'clock.

Orchard Cultivation and Spraying, by Prof. J. C. Blair, of University of Illinois; Coach and Carriage Horses, by Amos F. Moore, President of State Farmers' Institute; Draft Horses, by S. Noble King, of Bloomington, Ill.; Management and Feeding of Swine, by S. A. Willmarth, Vice-President Illinois Farmers' Institute; song.

Evening session, 7 o'clock.

Music; address by Charles Dalton, of Chicago; declamations by Burrell Hawkins and others; plenty of singing and a grand, good time.

Saturday, November 19, morning session, 9:30 o'clock.

Music; invocation by Dr. Alvin W. Claxon, Acting President of Ewing College; Fruit Growing, by J. M. Vancell, of Franklin county; song; Agricultural Education, by J. W. Barber, of Edwards county; Hogs for the Farm, by J. E. Sellar, of Wabash county; Forage Plants, by W. C. Davis, of Wayne county; song.

Afternoon session, 1 o'clock.

Music; Why We Should Remain on the Farm, by Rev. J. F. Harmon, of Mt. Vernon; song, Don't Be In a Hurry to Go, Boys; election of officers, reports of committees, etc; closing song, God be With You 'Till we Meet Again.

Officers elected for the ensuing year: President, L. N. Beal, Mt. Vernon; Secretary and Treasurer, John R. Piercy, Mt. Vernon.

Average daily attendance not reported. Cost of institute, \$124.

JERSEY COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Jerseyville, December 1 and 2, 1898.

Officers: President, E. A. Reihl, Alten; Secretary, J. W. Becker, Jerseyville.

Program—Thursday, December 1, 1898;
morning session, 10:30 o'clock.

Opening remarks by the President: Wheat Raising in Illinois, Wm. Coleman of Cass county.

Afternoon, 1:30 o'clock.

Appointment of committees; Points on Pork, F. H. Rankin, Athens, Ill.; general discussion; A County Good Roads Association; general discussion; Awarding of Premiums; adjournment.

Friday, December 2, morning, 9:30 o'clock.
Cattle and Stock Raising in Illinois, Hon. A. P. Grout, Winchester; discussion; Poultry, D. T. Heimlich, Editor Poultry Journal, Jacksonville, Ill.; Life on a Jersey County Farm, Sixty Years Ago, Ed. Miner, Carrollton; Fall Pasture; Value of the Cow Pea to Farmers; general discussion.

Afternoon, 1:30 o'clock.

Reading of Prize Essays; Corn Cultivation Experiments at University of Illinois; Prof. P. G. Holden, Champaign, Ill.; Awarding premiums; miscellaneous business; reports of committees.

Officers elected for the ensuing year: President, Spencer Wycoff, Delhi; Secretary and Treasurer, J. W. Becker, Jerseyville.

Average daily attendance, 150. Cost of institute, \$70.50.

J. W. Becker, Jerseyville.

JO DAVIESS COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Scales Mound, January 31, and February 1, 1899.

Officers.—President, James B. Berryman, Scales Mound; secretary, John Dallyn, Galena.

Program.—Tuesday, January 31, 1899.—Morning session.

10:00, Prayer, Rev. J. G. Shadford; 10:30, Tobacco Culture and General Farming, M. K. Marshall; 11:00, Farm Mortgages—Their Advantages and Disadvantages, J. B. Rife; 11:30, appointment of committees.

Afternoon session.

1:30, Points on Pork and Clover Culture, Fred H. Rankin, of Athens, Ill.; 2:30, Roots in Northern Illinois, Wm. Skene; 3:30, Success on the Farm, Fred H. Rankin.

Evening session.

7:00, music; 7:30, address of welcome, Geo. Bale; Greeting Song; response by J. Dallyn; solo; 8:00, Things Are Not as They Used to Be, T. J. Van Matre; music; paper, Miss B. Hallet; music; paper, Miss Virden; music; address, Rev. J. T. LeGear; music.

Wednesday, February 1, 1899.—Morning session.

10:00, Cattle Breeding, D. L. Norris; 10:30, How a Badger Saw the Lone Star State, John March; 11:00, Corn Culture, Prof. P. G. Holden, Champaign, Ill.

Afternoon session.

1:30, Our Dairy Interests, J. W. Spear; 2:00, Soil, Its Care and Management, Prof. P. G. Holden, Champaign, Ill.; 3:00, The Needs of an Agricultural College, Amos F. Moore, Polo.

Officers elected for the ensuing year.—President, Freeman Lauver, Stockton; secretary and treasurer, John Dallyn, Galena.

Average attendance, 250; cost of institute, \$70.

JOHNSON COUNTY FARMERS' INSTITUTE.

No meeting held; no report.

Officers elected for the ensuing year.—President, —; secretary, —; treasurer, —.

KANE COUNTY FARMERS' INSTITUTE.

Annual meeting was held at Geneva Feb. 16, 17, 1899.

Officers of County Institute.—President, R. J. McCormack, Geneva; secretary, Henry McGough, Geneva.

Program.—Thursday, Feb. 16.—Morning session, 9:30 o'clock.

Prayer, Rev. J. A. Axleson, Geneva; address of welcome, Hon. D. J. Hogan, Geneva; response, Hon. W. R. S. Hunter, Ellwin; president's address, Robt. J. McCormack, Geneva; music, Miss Carrie Harrington, Geneva; Sanitary Management of Swine, James Riley, Thornton, Indiana; discussion, S. W. Meyers, Sugar Grove; A. T. Judd, Sugar Grove; Mr. Lamson, Big Rock; F. W. Belden, Kaneville.

Afternoon session, 1:15 o'clock.

Mistakes on Our Dairy Farms H. B. Gurler, DeKalb; discussion, Alfred Bosworth, Elgin; John DeLancy, Elgin; S. N. Wright, Elgin.

Evening session, 7:30 o'clock.

Piano solo, Miss Constantine Lang, Elgin; recitation, Mrs. Emma C. Buchanan, Elgin; address, Dr. Wm. A. Colledge, Aurora; music, Kaneville mandolin club, Miss Grace M. Ravlin, Miss Junie Fink, Miss Alta Ravlin, Mrs. Myrtle Goodwin Spencer, Mrs. Clarence Humiston; vocal solo, Miss Julia E. Holden, Aurora; duet, Mr. and Mrs. B. A. Dumser, Elgin.

Friday, February 17.—Morning session, 9:30 o'clock.

Recitation, Mrs. Edith Bartlett, Chicago; Horticulture, L. J. Hartwell, Dixon; discussion, W. J. Brown, Geneva, David Hill, Dundee; Beef-making vs. Milk, Hon. C. D. Bartlett, Bartlett; discussion, Joseph Ingham, Sugar Grove; Hon. E. C. Lovell, Elgin; F. W. Belden, Kaneville.

Afternoon session, 1:00 o'clock.

Election of officers for the ensuing year; violin solo, Julia Garfield; recitation, Mrs. Edith Bartlett, Chicago; Practical Corn Culture, (illustrated), James Riley, Thorntown, Indiana; discussion, George Peck, Geneva; Frank L. Young, Kaneville; J. F. Mason, Elgin; music, string band, Oakley Sisters, Daisy, Jessie, Bonnie and Kittle, Hampshire; address, G. A. Willmarth, Seneca.

Evening session, 7:30 o'clock.

Song, Mrs. George E. Noyes, Geneva; instrumental music, string band, Oakley, sisters, Daisy, Jessie, Bonnie and Kittle, Hampshire; address, Education of the Farmer Boy, Prof. J. E. Nelson, Geneva; solo, Miss Ella Freeman, Aurora; music, Conde's harp orchestra, Batavia; America, led by Mrs. Noyes and Miss Ella Freeman, and everybody sings.

Officers elected for the ensuing year.—President, R. J. McCormack, Geneva; secretary, C. P. Dutton, Geneva; treasurer, Henry McGough, Geneva.

Average daily attendance, 400; cost of Institute, \$114.34.

KANKAKEE COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Manteno, on February 21-22, 1899. Officers: President, O. W. Barnard, Manteno; secretary, L. W. Smith, Manteno.

Program.—Tuesday, February 21, morning session 9:30 o'clock.

Prayer, Rev. John May; music; address of welcome, O. W. Barnard, Manteno; response, J. W. Breen, editor Independent; music; paper, Thrift and Esthetics on the Farm, D. S. McKinstry, Kankakee; music; Poultry Raising and discussion, Martin Swihart, Sumner.

Afternoon session, 1:30 o'clock.

Music; The Road Question, J. F. Schmeltzer, Manteno; recitation, Lillian Dole, Manteno; Experiments in Pig Feeding, L. D. Hall, College of Agriculture, Champaign; The Sugar Beet and its Possibilities in Kankakee County, discussion, Hon. L. Hay, Kankakee.

Evening session, 7:00 p. m.

Music, Manteno Club Band; The Boy on the Farm, Prof. R. E. Selby; recitation, Miss

O. W. BARNARD, Manteno.

Pearl LeBeau; music, Miss Nelda Marceau; C. E. Carter, of the Momence Press Reporter, Husking the Down Row; Manteno Club Band.

Wednesday, February 22, morning session, 9:30 o'clock.

Music; The Farmer's Garden, John Devere; Mistakes and Opportunities on Our Dairy Farms, H. B. Gurler, DeKalb.

Afternoon session, 1:30 o'clock.

Music; election of officers and locating next institute; Corn Culture, J. M. Thompson, Joliet; music; Growing Corn for Profit, Wm. S. Patterson, Exline.

Officers elected for the ensuing year: President, O. W. Barnard, Manteno; Secretary, Luther W. Smith, Manteno; treasurer, J. F. Schmeltzer, Manteno; average daily attendance, 100; cost of institute,

1911

LUTHER W. SMITH, Manteno.

KENDALL COUNTY FARMERS' INSTITUTE AND EIGHTH CONGRESSIONAL DISTRICT INSTITUTE WERE HELD AT YORKVILLE ON JANUARY 18 AND 19, 1899.

Officers of County Institute: President, Edmund Seely, Yorkville; Secretary, R. A. McClellen, Yorkville; Director of District, C. D. Bartlett, Bartlett.

Program—Wednesday, January 18; morning session, 10 o'clock.

Music, Godard's Orchestra; prayer, Rev. S. W. Meek, Pastor Congregational Church; song, America, audience; address of welcome, W. R. Newton, Mayor of Yorkville; response, A. D. Havenhille, Fox; reading minutes of last meeting; reports of committees; paper, Bees on the Farm, Jas. S. Green, Ottawa; discussion.

Afternoon session, 1:30 o'clock.

Music, Godard's Orchestra; recitation, Miss Kannie Simons, Specie Grove; music, Godard's Orchestra; paper, The Farmer and the Railroad, J. C. Bertram, Bristol; discussion; paper, Calf Raising, J. V. Jessup, Na-au-say; discussion; paper, Corn Culture, E. S. Fursman, El Paso; discussion.

Evening session, 7:30 o'clock.

Music, La Croix Club, of Yorkville; recitation, Miss Mabel Raleigh, Yorkville; violin solo, Mr. William Mertner, Yorkville; vocal solo, Miss Eliza Jessup, Na-au-say; instrumental music, Misses Cooper and Godard, Yorkville; address, Rev. J. M. Griswold, Pastor Yorkville M. E. Church; music, La Croix Club.

Thursday, morning session, 10 o'clock.

Music, Godard's Orchestra; prayer, Rev. J. A. Monk, Pastor Yorkville Baptist Church; election of officers; paper, Veterinary Science, E. S. Fry, D. V. S., Naperville; discussion; paper, Rural Schools, Prof. R. S. Morgan, Wheaton.

Edmund Seely, Yorkville.

1:30 o'clock.

Music, Godard's Orchestra; paper, Horticulture, L. J. Hartwell, Dixon; discussion; paper, Education of the Farmer's Boy, G. W. Dean, Adams; discussion; paper, Rebuilding of the Soil, Robert C. Morris, Olney; discussion; Reports of the Dairy, Eugene Matlock, Pavilion.

Evening session, 7:30 o'clock.

Music, Godard's Orchestra; recitation, Miss Estelle Shepard, Oawego; violin solo, Miss May Markel, Yorkville; vocal solo, Mrs. Evans, Plano; flute and piccolo duet, Messrs. Kocs and Godard, Yorkville; paper, Farming as a Business, Dwight Herrick, Rochelle; music, Godard's Orchestra.

Friday, morning session, 10 o'clock.

Music, Godard's Orchestra; prayer, Rev. J. M. Griswold, Pastor Yorkville M. E. Church; Agricultural Education, Prof. E. Davenport, Urbana; discussion; paper, domestic science, Mrs. H. M. Dunlap, Savoy; discussion; music, Godard's Orchestra.

Afternoon, 1:30 o'clock

Music, Godard's Orchestra; Special Lines of Farming, B. F. Wyman, Sycamore; discussion; Marketing Farm Products, Alvin Joiner, Polo, Ill.

R. A. McClellen, Yorkville.

Evening, 7:30 o'clock.

Music, Godard's Orchestra; chorus, Yorkville High School; select reading, Miss Adelpia Durston, Yorkville; vocal solo, Mrs. Herbert Bassett, Yorkville; lecture, The Bashful Young Man, C. P. Burton, Aurora; chorus, Yorkville High School; music, Godard's Orchestra.

Officers elected for the ensuing year: President, Edmund Seely, Yorkville; Secretary and Treasurer, Alonzo Stansel, Yorkville.

Average daily attendance, 300. Cost of institute, \$178.24.

KNOX COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Galesburg, on February 1, 2 and 3, 1899.

Officers: President, Hugh Greig, Galesburg; Secretary, O. L. Campbell, Knoxville.

Program—Wednesday morning, February 1, 10 o'clock.

Music, in charge of John Coolidge; prayer, Pastor of Christian Church; address of welcome, Mayor Cooke; response, President, H. Greig; Farming in Mexico, Dr. J. V. N. Standish; Our Public Schools, E. S. Wilkinson, County Superintendent of Schools; discussion.

Afternoon session, 1:30 o'clock.

Music, Mrs. Helen Carlton Marsh; address, Education, Dr. Nash; discussion; address, Domestic Economy, Mrs. Nellie S. Kedzie, Peoria; discussion, The Renter as He Was, L. W. Olson, Wataga; The Renter as He Is, Chas. Moore, Sparta; The Renter as He Ought to Be; H. Greig, Oneida; paper, Mistakes on the Farm, with Practical Thoughts, A. G. Charles Knox; discussion.

Thursday morning, February 2, 10 o'clock

Music; prayer, Rev. D. Vincent; paper, My Home Flower Garden, Mrs. E. S. Fursman; address, Poultry, John Coolidge, Galesburg; paper, Our New Possessions, O. L. Campbell; address, Farm Homes, E. S. Fursman, El Paso.

Afternoon session, 1:30 o'clock.

Music, solo, Miss Carey; address, Swine Husbandry, Hon. G. A. Willmarth, Vice-President State Institute; paper, My Cattle and Hogs—What I Do For Them and What They Do For Me, Wm. McCornack, Oneida; address, The Maize Propaganda, Col. Clark E. Carr.

Friday morning, February 3, 10 o'clock.

Music; prayer, Rev. E. F. Gee; awarding premiums on corn exhibit; recitation, selected, Prof. Albert Humphrey; Report on Sugar Beet Raising in Knox County, Theodore Hapke.

Afternoon session, 1:30 o'clock.

Paper, Window Gardening, I. L. Pillsbury; paper, How to Raise Corn at a Profit, E. A. Shaw, Oneida; election of officers.

Officers for the ensuing year: President, A. G. Charles, Knoxville; Secretary, O. L. Campbell, Knoxville; Treasurer, H. M. Sisson, Galesburg.

Average attendance, 300. Cost of institute, \$106.37.

LAKE COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Grays Lake on January 20 and 21, 1899. Officers: President, J. E. Holcomb, Rockefeller; secretary, J. J. Burke, Antioch.

Program—Morning session.

Organization; miscellaneous business.

Afternoon session, 1 o'clock p. m.

Prayer, Rev. Fredenhagen; Small Fruits Upon the Farm, H. B. Pierce, Antioch; The Relation of Farmers to Our Changed National Conditions, Present and Future, A. K. Stearns, Waukegan; Attractions of Farm Homes, Rev. A. B. Smart, Antioch; Farm Buildings, George H. Kennedy, Hickory; Bee Keeping, Fred Grabbe, Libertyville; Farm Labor, J. E. Holcomb, Rockefeller; Agricultural Education, Dennison Huntington, Lake Zurich; Cattle, Albert Chinn, Antioch; Farm Fences, E. P. Dodge, Millburn; Farmers' Money and How to Use It, Rev. S. A. Harris, Milburn; Hogs, C. G. Small, Rockefeller.

Saturday morning session.

Clover as a Food and Fertilizer, B. L. Colby, Libertyville; Horses, C. B. Easton, Deerfield; Potato Culture, C. C. Carpenter, Channel; Mutual Fire Insurance, J. A. Thain, Millburn; Money, From a Business Standpoint, E. C. Scott, Waukegan; Sheep, Hon. James Pollock, Millburn; Marketing Live Stock, Charles Brown, Gurnee; Benefits of Farmers' Institutes, C. J. Lindemann, Chicago; Drainage, L. C. Manzer, Lake Villa; Veterinary Science, Joseph Wilmington, V. S., Rollins.

Afternoon session, second day.

Postal Savings Banks, Hon. George Waite, Volo; Fruit Trees, Kinds Best Adapted to Northern Illinois, H. B. Pierce, Antioch; Rotation of Crops, William Westlake, Antioch; The Chicago Milk Dealer, S. Hill, secretary Milk Shippers' Union, Chicago; The Silo, H. D. Hughes, Antioch; Dairying, Warren Holland, Russell; The Public Road, W. H. Wilmot, W. Deerfield.

Officers elected for the ensuing year: President, J. E. Holcomb, Rockefeller; secretary, J. J. Burke, Antioch; treasurer, H. B. Pierce, Antioch.

Average attendance, 300; cost of inst'tute, \$50.00.

**LASALLE COUNTY FARMERS' INSTITUTE AND CONGRESSIONAL
FARMERS' INSTITUTE FOR THE ELEVENTH DIS-
TRICT, STREATOR, ILLINOIS, JAN-
ARY 26-27, 1899.**

Officers: President, G. A. Willmarth, Seneca; secretary, Mrs. L. G. Chapman, Freedom; director of district, G. A. Willmarth, Seneca.

Program—Thursday, January 26, 1899, morning session, 10 o'clock.

Music; prayer; address of welcome, Mayor Bean; response, G. A. Willmarth, president; secretary's report; report of delegates from County Institutes in Eleventh Congressional District.

Afternoon session, 1:30 o'clock.

Music, quartet; address, Better Live Stock and How to Get It, Prof. E. Davenport, Dean of Agricultural College, University of Illinois; discussion, led by Charles Dolton, member board of agriculture, first district; instrumental duet, Qui Vive, by Miss Jennie P. Kray and Miss Finlen, Streator; reading, Miss Rose Finlen, Streator; address, Domestic Science, Mrs. Nellie S. Kedzie, of the Bradley Polytechnic Institute, Peoria.

Evening session, 7:30 o'clock.

Music, orchestra; prayer; reading, Miss Henrietta Cherry, Streator; reading, Miss Florence Kerby, Streator; address, Agriculture and Our Other Industries, Hon. David Ward Wood, editor Western Plowman, Chicago.

Friday, January 27, 1899, morning session, 10 o'clock.

Music; prayer; address, Clover Culture, C. C. Pervier, president Bureau County Farmers' Institute; discussion; address, The Illinois Farmers' Institute, Charles F. Mills, superintendent of Institute, Springfield.

Afternoon session, 1:30 o'clock.

Music, by F. M. Higgins; address, Cattle and Stock Raising for Illinois, Hon. A. P. Grout, president Live Stock Breeders' Association for Illinois; discussion, led by S. Noble King, Bloomington; address, Hard Roads, A. C. Baldwin, Deer Park.

Evening session, 7:30 o'clock.

Music; prayer; reading, Miss Florence Kerby, Streator; address, Farmers and Farming, Hon. C. G. Luce, ex-Governor Michigan, Coldwater, Mich.; reading, Miss Elizabeth Rigden, Ottawa; music; reading, Miss Henrietta Cherry, Streator; address, Fellowship Among Farmers, Hon. James R. Miller, grand secretary of I. O. O. F., Springfield, Ill.; music; close; program committee, G. A. Willmarth, Mrs. L. G. Chapman.

Officers for the ensuing year: President, G. A. Willmarth, Seneca; secretary, L. G. Chapman, Freedom; treasurer, A. F. Schock, Ottawa.

Average daily attendance, 900; cost of institute, \$152.50.

LAWRENCE COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Lawrenceville on February 2-3, 1899. Officers: President, Robert Kingsbury, Pinkstaff; secretary, William E. Neal, Bridgeport.

Program—Thursday, February 2, 1899, morning session.

Call to order, R. W. Kingsbury, president; music; prayer, Rev. John Leeper; address by president; appointment of committees; music; Are Sheep Profitable for Lawrence County Farmers? R. M. Kirkwood; discussion, Ed. Dollahan; music; Tiling, Moses Spangler; discussion, J. K. Dickirson.

Afternoon session.

Music; Poultry on the Farm, Mrs. S. Rose Carr, Lis, Ill.; discussion, W. D. Barr; music; Farm Pests, Dr. J. Schneck, Mt. Carmel, Ill.; question box, any question pertaining to farm or stock solicited.

Evening session.

Call to order; music; address of welcome, Major J. W. McCleave; response, Dr. Schneck, Mt. Carmel; music; The Parent and the School, W. F. Cooper, Bridgeport; music by group of farmer boys; Compensation, J. B. Stout.

Friday, February 3, 1899, morning session.

Music; prayer, Elder W. R. Corter; Rearing and Feeding Beef Cattle for Profit, John O. Honnold; discussion, C. H. Crews; music; Farm Institute Work and Agricultural College, D. H. Shank, Paris, Ill.; question box.

Afternoon session.

Music; Domestic Economy, Mrs. G. W. Lackey; music; Farmers' Boys and Girls, H. W. Hostettler; music; How to Raise Hogs at a Profit, William Wilson; discussion, C. J. Sheridan; reports of committees; election of officers for ensuing year; adjournment.

Officers elected for the ensuing year: President, Robert Kingsburg, Pinkstaff; secretary, William E. Neal, Bridgeport; treasurer, J. K. Dickirson, Lawrenceville.

Average daily attendance, 200; cost of institute, \$50.00.

LEE COUNTY FARMERS' INSTITUTE AND CONGRESSIONAL FARMERS' INSTITUTE FOR THE NINTH DISTRICT DIXON ILLINOIS, FEBRUARY 2-3, 1899.

Officers of County Institute: President, Hiram Hetler, Dixon; secretary, Roy S. Swigart, Dixon. Director of District A. F. Moore, Polo.

Program, Thursday, February 2, 1899, morning session, 10 o'clock.

Prayer, Rev. Leek; address of welcome, Mayor F. A. Truman; response, President Hiram Hetler; secretary's report, Roy E. Swigart; treasurer's report, Eugene Raymond; report of delegates from County Institutes in the Ninth Congressional District.

Afternoon session, 1:15 o'clock.

A Dairyman Talk, Eugene Matlock, Yorkville, Ill.; discussion; Short Talks on Dairying, by John L. Lord, G. Selig, Hon. L. W. Mitchell and others; Clover and Its Benefits, Fred H. Rankin, Athens; discussion.

Evening session, 8:00 o'clock.

Music, furnished by Prof. Strong, of U. I. U. S.; How to Make the Most of Farm Life, Fred H. Rankin, Athens, Ill.; recitation, pupil of Steinman Institute; music, U. I. U. S.; Our Agricultural College, Hon. Amos F. Moore, President Illinois Farmers' Institute; music, U. I. U. S.

Friday, February 3, 1899, morning session, 10:00 o'clock.

Poultry Talk, Miller Purvis, Chicago; discussion; Orchard Growing, H. Augustine, Normal, Ill.; discussion; appointment of committees.

Afternoon session, 1:15 o'clock.

Corn Growing, Prof. P. G. Holden, Agriculture College, Champaign; discussion; Hard Roads and Road Construction, J. H. Moore, Polo, Ill.; discussion; election of officers; report of committees.

Evening session, 8:00 o'clock.

Music, U. I. U. S.; Why and How Should Agriculture be Taught in Our Public Schools, A. W. Brayton, Mt. Morris; recitation, by Pupil, Steinman Institute; music, U. I. U. S.; The Sugar Beet Industry, Prof. Holden, Champaign; music; Farmer's Institutes, Col. Charles F. Mills, Secretary Illinois Farmers' Institutes, Springfield, Ill.; music, U. I. U. S. G.

A. Willmarth, Seneca; S. Noble King, Bloomington; A. J. Lovejoy, Roscoe; Charles Walkup, Oregon, and many other Institute workers are expected to be present at this round up and will take part in the discussions.

Officers elected for the ensuing year: President J. L. Hartwell, Dixon; secretary, Roy E. Swigart, Dixon; treasurer, Eugene Raymond, Dixon; average attendance, 100; cost of institute, \$100.00.

LIVINGSTON COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Fairbury, on February 15-16, 1899. Officers: President, S. M. Barnes, Fairbury; secretary, O. S. Westervelt, Fairbury.

Program.—Wednesday, February 15, 1899, morning session, 10 o'clock.

Reception; installation of exhibits.

Afternoon session, 1:30 o'clock.

Prayer, by E. S. Wilson; address, Live Stock for the General Farmer, E. E. Chester, Champaign, Illinois; address, How Shall the Nation Secure Educated Mothers, Mrs. Clara F. Culbertson, Piper City; address, Farm Homes, E. S. Fursman, El Paso.

Evening session, 7:30 o'clock.

Chorus, Fairbury high school; prayer, Rev. C. S. Davies; chorus, Fairbury high school; address, Husking the Down-Row, C. E. Carter, Momence.

Thursday, February 16, 1899, morning session, 10 o'clock.

Address, Poultry Talk, D. T. Heimlick, Jacksonville, Illinois; discussion invited; address, Education of Farmers, G. A. Willmarth, Seneca, Illinois; address, Clover Culture, E. S. Fursman, El Paso; discussion.

Afternoon session, 1:30 o'clock.

Election of officers; reading list of premiums; address Cattle and Stock Raising for Illinois, A. P. Grout, Winchester, Illinois; discussion; address, Corn Culture, W. Mills, Magnolia, Illinois.

Officers elected for the ensuing year: President, S. M. Barnes, Fairbury; secretary, O. S. Westervelt, Fairbury; Treasurer, C. S. Brydia, Fairbury.

Average daily attendance, 500; cost of institute, \$113.23.

**LOGAN COUNTY FARMERS' INSTITUTE, AND CONGRESSIONAL
FARMERS' INSTITUTE FOR THE SEVENTEENTH DISTRICT,
LINCOLN, ILLINOIS, DECEMBER 1, 2, 3, 1898.**

Officers of County Institute.—President, J. T. Foster, Elkhart; secretary, J. W. Jones, Lincoln; director of district, Col' Chas. F. Mills, Springfield.

Program.—Thursday, December 1, 1898,
10:00 o'clock A. M.

Music; prayer; address of welcome, Mayor W. O. Jones; response, J. T. Galford, Elkhart; president's address, J. T. Foster; report of secretary, J. W. Jones; report of treasurer, C. W. Blackburn; music; report of delegates from County Institutes in Seventeenth Congressional district, Christian county, R. J. Stone, Stonington; Logan county, Wm. S. Evans, Lincoln; Menard county, Fred H. Rankin, Athens; Sangamon county, James A. Stone, Bradfordton; address, The Illinois Farmers' Institute, Charles F. Mills, Springfield, superintendent of Institutes.

Afternoon session, 1:00 o'clock.—Woman's session, Mrs. R. J. Oglesby, presiding.

Paper, Comfort and Economy in the Home, Mrs. William S. Evans, Lincoln; paper, Butter Making on the Farm, Mrs. H. P. Purviance, Lincoln; music; address, Domestic Science, Mrs. Nellie S. Kedzie, Peoria; paper, Education for the Farmer's Daughter, Miss Grace Caldwell, New Holland; music; address, Woman's Building on the State Fair Grounds, Mrs. R. J. Oglesby, Elkhart; adjournment. By request the Thursday evening program has been suspended as a courtesy to Leo W. Myers Post, Grand Army of the Republic, under whose auspices General Gordan will deliver his famous lecture at the Cumberland Presbyterian church. Out-of-town parties may arrange with Secretary Jones for reserved seats.

J. W. Jones, Lincoln.

Friday, December 2, 9:00 A. M.

Prayer; paper, Potato Culture, Elmer Tuney, Mt. Pulaski; discussion, Breeding and Feeding Sheep in Central Illinois, R. J. Stone, Stonington; address, Ex-Governor Richard J. Oglesby, Elkhart; adjournment for dinner.

Afternoon session, 1:00.

Music; Horse Breeding, George Williams, Athens; discussion; paper, The Farm Dairy, Ralph Allen, Delavan; discussion; paper, Clover Culture, Fred H. Rankin, Athens; discussion; music; address, Insects Injurious to Corn, E. S. Fureman, Urbana; adjournment.

Evening session, 7:30 o'clock.

Music; address, Our Agricultural College, Prof. Eugene Davenport, Dean of College of Agriculture, Champaign; address, Fellowship Among Farmers, Hon. James R. Miller, Springfield, grand secretary I. O. O. F.; music; adjournment.

Saturday, December 3, 9:15 A. M.

Bees on the Farm, J. Q. Smith, president State Beekeepers' Association, Lincoln; discussion; address, Why the Boys Leave the Farm, Hon. R. M. Bell, Decatur; discussion; paper, Care of Pastures, J. T. Foster, Elkhart; discussion; paper, Poultry on the Farm, Mrs. Waddell; discussion; adjournment.

Afternoon session, 1:00 o'clock.

Election of Officers for the ensuing year; music; address, Corn Culture, Prof. Holden; music; address, Feeding Cattle for Market, Hon. J. Merriam, Atlanta; discussion.

Officers elected for the ensuing year.—President, J. T. Foster, Elkhart; secretary, J. W. Jones, Lincoln; treasurer, John A. Critchfield, Broadwell.

Average attendance, 200; cost of Institute, \$117.30.

MACON COUNTY FARMERS' INSTITUTE.

No report for the last year.

Officers last elected, of which any report was made, are: President, W. H. Bean, Blue Mound; secretary, C. A. Thrift, Forsythe; treasurer, C. H. Scott, Mt. Zion.

MACOUPIN COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Carlinville, on December 21-22, 1898. Officers: President, David Gore, Carlinville; secretary, W. B. Otwell, Carlinville.

Program.—Tuesday morning, 10 o'clock.

Prayer, Rev. Everhardt; music; address of welcome, Charles H. Gillman, mayor; response, A. P. Grout, Winchester, Illinois, Director of the 16th Congressional District; paper, The County Institute, Chas. F. Mills, Springfield, Illinois, Secretary Illinois Farmers' Institutes.

Tuesday afternoon, 1:30 p. m.

Music, vocal solo, Miss Bessie Crow; paper, Soja Beans, W. H. Stoddard, Carlinville; music, harp solo, Ralph Swain; paper, Management and Feeding of Swine, G. A. Willmarth, vice president Illinois Farmers' Institutes, Seneca, Illinois; music, string instrumental Duo, James Brown and Alfred Mayfield; address, Chas. Dolton, Chicago, Director Illinois Farmers' Institute, 1st District.

Tuesday evening, 7:30 o'clock.

Music, Carlinville band, Prof. Hunt, director; music, vocal solo, Just Break the News to Mother, Miss Fannie Blackshaw, Palmyra; paper, Domestic Science, Mrs. S. Noble King, Bloomington; music, vocal solo, Miss Grace Kauerauff; address, The Farm, Riley Willsey, Pike county; music, vocal solo, Mrs. W. L. Mounts; select reading, Wesley Challacombe, Prof. Mathematics, Blackburn University; music, vocal solo, Mrs. Annie Barbour.

Wednesday morning, 10 o'clock.

Music, string instrumental duo, James Brown and Geo. Mosser; address, The Most Profitable Horse to Raise, J. K. P. Farrelly, Greene county; address, Coach and Carriage Horses, Amos F. Moore, Polo, Illinois; address, Draft Horses, S. Noble King, Bloomington, Illinois.

Wednesday afternoon, 1:30 o'clock.

Music, vocal solo, Miss Abbie Seaman; paper, Clover, W. B. Conover, Cass county; paper, Better Butter and Better Prices, W. H. Stevenson, Morgan county; music, vocal quartette, Mrs. Annie Barbour, Mrs. T. K. Gore, Miss Mamie Parker, Miss Sadie Brown; paper, Sweet Potato Culture, E. A. Reihl, Jersey county; paper, Orcharding, W. S. Barber, Calhoun county.

Wednesday evening, 7:30 o'clock.

Music, Carlinville band; music, vocal solo, Mrs. T. K. Gore; address, The Farmer, Hon. Henry Miner, Scott county; music, vocal octette, Jessie Fryman, Clara Lorenz, Bessie Crow, Grace Childs, W. Meteer, Jas. Brown, Herbert Crowder, Harry Cundall, accompanied by Miss Cora Keplinger; paper, Small Fruit for the Farm and How to Grow It, L. N. Beal, Mt. Vernon, Illinois, director Illinois Farmers' Institute, 20th District; music, vocal duet, Mrs. Annie Barbour, Mrs. T. K. Gore; reading, Mrs. J. M. Barcus; music, vocal solo, Miss Sadie Brown.

Officers elected for the ensuing year: President, W. B. Otwell, Carlinville; secretary, Robert Whitely, Jr., Carlinville; treasurer, George Duckles, Carlinville.

Average daily attendance, 500; cost of institute, \$129.53.

MADISON COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Edwardsville, October 12-13, 1899. Officers: President, Louis A. Spies, St. Jacobs; secretary, Lee Dorsey, Moro.

No report of program.

Officers elected for the ensuing year: President, Louis A. Spies, St. Jacobs; secretary and treasurer, Lee Dorsey, Moro.

Average daily attendance, 125; cost of institute, \$116.31.

MARION COUNTY FARMERS' INSTITUTE.

No institute was held the past season.

Officers elected February 1898: President, J. M. Green, Salem; secretary, W. K. Shook, Salem; treasurer, W. C. McClelland, Sandoval.

MARSHALL COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Wenona, January 4 and 5, 1899.

Officers: President, Alfred Judd, Wenona; Secretary, Elmer Quinn, Henry.

Program—Wednesday, January 4.

Call to order at 10 o'clock a. m.; prayer, Rev. Small; address of welcome, Mayor Hon C. Fosbender; response, President Alfred Judd; paper, Fellowship Among Farmers, J. A. Williams, Henry; paper, Sugar Beet Industry, S. J. Taylor, Wenona.

Recess to 1:30 p. m.

Paper, Disposal of Farm Products, A. L. Turner, Wenona, discussed by Wm. Koch, Varna; paper, Woman's Position in Modern Society, Mrs. Helen M. Held, Lacon; paper, What is the Most Profitable Age to Market Hogs? H. E. Broadbus, Varna, discussed by R. W. Iliff, Lacon; question box.

Evening session, 7 o'clock.

Prayer, Rev. Small; music, The Carmen Quartet; address, Success on the Farm, Prof. P. G. Holden, Champaign; music, The Carmen Quartet; address, The Relation of the Farmer to the Teacher, Frank M. Crangle, Watseka; music, The Carmen Quartet.

Thursday, January 5, 9:30 a. m.

Prayer, A. B. Cooper; paper, Side Lines in Farming, S. S. Merritt, Henry, discussed by Charles M. Turner, Wenona; paper, Most Profitable Breed of Sheep on the Farm, C. W. Monier, Sparland, discussed by A. C. Garvin, Wenona, and Jerry Trone, Lacon; paper, The Inducements of Farm Life for a Young Man, Clarence Grosscup, Wenona, discussed by Milton Malone, La Rose; paper, The Inducements of Farm Life for a Young Lady, Florence Iliff, Lacon, discussed by Della Wells, Wenona; question box.

Alfred Judd, Wenona.

Recess to 1:30 p. m.

Election of officers; paper, The Farmer's Duty to the Community, Curtis Wright, Varna, discussion by F. F. Thierry, Wenona; paper, Is a Change of Seed Essential to Successful Farming? Andrew Baechler, Lacon, discussed by Truman Sperry, Lacon; paper, Should Husband and Wife Have Separate Pocketbooks? Mrs. John Shields, Varna, discussed by Mrs. J. A. Williams, Henry and H. A. Winter, Wenona.

Officers elected for the ensuing year: President, C. J. Held, Lacon; Secretary and Treasurer, Elmer Quinn, Henry.

Average daily attendance, 260. Cost of institute, \$51.70.

MASON COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Manito, December 7 and 8, 1898.

Officers: President, G. G. Hopping, Havana; Secretary, E. H. Ellenberger, Manito.

Program—Wednesday morning, 10 o'clock.

Music; invocation, Rev. E. A. Drake; address of welcome, Dr. Darling; Corn Culture, A. D. Schamel; discussion, J. T. Mowder, Rev. Keist, Abe Tomlin; recitation, Miss Nora Barringer.

Afternoon, 1 o'clock.

Music; election of officers; Swine Breeding and Feeding, Fred Rankin; discussion, T. N. Sutton, S. B. Spear, J. C. Ramsey; Sheep Husbandry, E. A. Wallace; discussion, E. J. Mell, Oscar Martin, J. T. Lowers.

Evening, 7 o'clock.

Music; recitation; Leaks on the Farm, Fred H. Rankin.; general discussion; Domestic Economy, Mrs. Nellie Kedzie.

Thursday morning, 10 o'clock.

Nutritious Value of Feed for Stock, Prof. Eugene Davenport; discussion, S. F. Porter, J. W. McHarry; Feeding Stock for the Market, W. H. Cogdall; discussion, Edward Heyl, George Mathers.

Afternoon, 1:30 o'clock.

Music; poultry, Mrs. J. S. McKinley; discussion, E. E. Caldwell; How to Make Country Homes Attractive, Mrs. Clauser; discussion, Mrs. Paul Enlows, Mrs. J. T. Lowers.

Evening, 7 o'clock.

Music; Educational Interests, Prof. Mathew Bolan; Boys on the Farm, Miss Fannie Spalts.

Officers elected for the ensuing year: President, Chas. E. Himmel, Bishops; Secretary, G. H. Welmer, Topeka; Treasurer, Miss Lena McHarry, Mason City.

Average daily attendance, 250. Cost of institute, \$70.35.

MASSAC COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Metropolis, Nov. 21, 22, 1898.

Officers.—President, T. A. Armstrong, Massac; secretary, F. A. Trousdale, Massac.

Program,—Monday morning, 10 o'clock.

Music, Presbyterian choir; invocation, Rev. B. C. Swan, D. D.; welcome address, James C. Courtney; 10:30, Successful Farming, Fowler Armstrong; discussion and queries; 11:25, Hay Raising, Capt. S. H. Kerr; discussion and queries; 12:00 adjournment for dinner.

Monday afternoon.

1:00, music, Metropolis High School; recitation, Miss Nellie Houts; 1:20, Stock Raising and Feeding, Charles Hausman; discussion and queries; 2:15, The Economic Control of the Chinch Bug, Prof. S. A. Forbes, of the State University, Champaign, Ill.; discussion and queries; 4:00, adjournment.

Tuesday morning, 9:30 o'clock.

Music, Methodist choir; invocation, Rev. J. W. Jackson; 10:10, Apple Culture, R. Byrd Leeper; discussion and queries; 10:45, The Country School, Its Needs and Possibilities, R. T. Alexander, county superintendent of schools; 11:25, The Necessity for Keeping the Boy on the Farm, and How to Do It, F. A. Trousdale; 12:00, adjournment.

Tuesday afternoon.

1:00, Music, Metropolis High School; recitation, Miss Essie Jones; 1:30, lecture, Dr. Daniel Berry, Carmi, Ill.; discussion and queries; 2:15, Farmer's Home, Mrs. Doris Slimpert; 2:45, Cow Peas, J. F. McCarty; discussion and queries; 3:30, Truck Farming, John Chick; 4:00, Wheat Growing, E. H. Tucker; 4:30, election of officers; adjournment.

Officers elected for the ensuing year.—President, F. A. Armstrong, Massac; secretary, Geo. C. Schreeman, Unionville; treasurer, J. F. McCartney, Metropolis.

Average daily attendance, 175; cost of Institute, \$65.53.

McDONOUGH COUNTY FARMERS' INSTITUTE.

Two Institute meetings were held during the year, one at Macomb, Nov. 15, 16, 1898, and one at Blandinsville, Feb. 7, 8, 1899.

Officers.—President, A. R. Strickle, Good Hope; secretary, Fred G. Miner, Adair.

Program.—At McComb, Tuesday, Nov. 15 —Morning session, 10:00 o'clock.

The Farm Dairy, A. A. Adair; How to Improve Our Country Schools, Superintendent J. M. Pace; question box.

Afternoon session, 1:30 o'clock.—Woman's session.

The Young People on the Farm, Mrs. Ella Graham; Poultry, Mrs. Snodgrass.

Wednesday, Nov. 16.—Morning session, 9:30 o'clock.

Music; report of State Institute, A. R. Stickel; Sugar Beets, Prof. P. J. Holden; Horses, John Huston; Cattle, S. Blackstone; Hogs, T. L. Hankins; Sheep, John Work.

Wednesday, Nov. 16, 1:30 P. M.

What, Where and How to Plant a Farmer's Orchard, H. Augustine, Normal, Ill.; discussion; Small Fruits For Home Use, H. L. Doan, Jacksonville, Ill.; discussion.

Wednesday evening, 7:30 o'clock.

Music; report of committee on the revision of the fruit list recommended for Central Illinois; discussion; Household Economics, Mrs. H. M. Dunlap, Savoy, Ill.; discussion.

Thursday, Nov. 17, 9:00 A. M.

Fruit, and How to Have It, H. E. Billings, Macomb, Ill.; discussion; Some Needs of the Apple Growers, C. G. Winn, Griggsville, Ill.

Afternoon session, 1:30 o'clock.

Apple Tree in Illinois, Prof. T. Burrill, Champaign, Ill.; discussion. Experimental Station's report, H. Augustine; discussion; What is the Horticultural Society Doing, and the Advantage of Membership?, Hon. H. M. Dunlap, Savoy, Ill.

Program.—Blandinsville, Tuesday, Feb. 7, 1899; morning session, 10 o'clock.

Education for the Farmer's Son, Fred G. Miner, Adair; discussion.

Afternoon session, 1 o'clock.

Music, male quartette; prayer, Rev. J. S. Clements, pastor of Christian church; address, "Better Live Stock, and How to Get it," Prof. E. Davenport, director Experiment Station, Urbana; discussion; address, The Life of the Chinch Bug, and How to Lessen its Ravages, C. S. Rice, Disco; discussion; question box.

Evening session, 7:30 o'clock.

Music, male quartette; address, Our Agricultural College, Prof. Davenport, Urbana; discussion; address, The American Farmer, Hon. G. W. Dean, director for the 15th Congressional district, Adair; question box.

Wednesday, Feb. 8, 1899 —Morning session 10 o'clock.

Paper, The Farmer's Garden, Mr. O. M. McElvain, Scottsburg; address, How to Raise Corn, Hon. John Huston, Blandinsville; discussion; address, Benefits of the Farmers' Institute, Hon. G. W. Dean, Adair; discussion; question box.

Afternoon, session, 1:30 o'clock.—Ladies' session.

Music; prayer; address, Mrs. O. M. McElvain, Scottsburg, president Women's Domestic Economy club; recitation, The Tramp's Story, Miss Ruby Risser, Blandinsville; address, Farm House Hospitality, Miss Agnes Hainline, Blandinsville; address, Hygiene in the Home, Mrs. Dr. Beacon, Blandinsville; discussion; address, The Girl on the Farm, Mrs. Nell Spangler Mustain, Blandinsville; paper, Raising Turkeys, Mrs. Florence Ragon, Good Hope; paper, Poultry, Miss Marie Edie, Good Hope; discussion; question box; report of committee on resolutions.

Officers elected for the ensuing year.—President, A. R. Strickle, Good Hope; secretary, Fred G. Miner, Adair; treasurer, S. Blackstone, Pennington Point.

Average daily attendance.—First meeting, 81; second meeting, 203. Cost of Institutes.—First meeting, \$32.43; second meeting, \$38.25.

McHENRY COUNTY FARMERS INSTITUTE.

The annual meeting was held at Harvard January 19-20, 1899. Officers: President, G. A. Hunt, Greenwood; secretary, George L. Murphy, Woodstock.

Program—Thursday, January 19, 1899, morning session, 10 o'clock.

Music; prayer; address of welcome, Mayor James Logue; response, Hon. F. L. Hatch; report of secretary, George L. Murphy; report of treasurer, E. H. Cook; Mission of Farmers' Institutes, G. A. Willmarth, Seneca, Ill.; vice president State Institute: Benefits and Cost of Tile Draining, T. McD. Richards, Woodstock; C. H. Tyron, Woodstock; Potato Culture, H. C. Mead, West McHenry.

Afternoon session, 1:30 o'clock.

How to Select a Good Dairy Cow, H. B. Gurler, DeKalb; Does It Pay to Raise Horses? Col. F. J. Berry, Chicago; The Coöperative Factory, M. Long, Greenwood; Corn and Its Commercial Products, E. S. Fursman, El Paso; Sheep Raising for Profit, A. J. Lovejoy, Roscoe; Education of Farmers, G. A. Willmarth, Seneca.

Evening session, 7:30 o'clock.

Music; prayer; Educating the Boy for the Farm, W. E. Wire, county superintendent of schools; music; The Ideal Farm Home, E. S. Fursman; recitation, Jane's Conquest, Miss Ruth Overton, Richmond; Sixty Years Behind the Plow, F. J. Van Matre, Fayette, Wis., (Wisconsin's Pioneer farmer); music; Formation and Necessity of Housekeepers' Clubs, Mrs. H. M. Dunlap, Savoy, Ill.; music.

Friday, January 20, morning session, 10 o'clock.

Should Farmers Keep Bees? Dr. C. C. Miller, Marengo; Fruit on the Farm, H. T. Thompson, Huntley; Silos and Ensilage, H. B. Gurler, DeKalb; Breeding and Care of Swine, G. A. Willmarth, Seneca; Clover, the Queen of Crops, H. B. Gurler and E. S. Fursman; Cause and Prevention of Milk Fever, J. H. Crawford, Harvard.

Afternoon session, 1:30 o'clock.

Music; prayer; Domestic Science for Farmers' Wives, Mrs. H. M. Dunlap; Our State University, Hon. F. L. Hatch, trustee State University, Spring Grove; Foods and Their Adulterations, H. S. Grindley, Department of Chemistry, State University; Large Crops of Corn and How to Grow Them, E. S. Fursman, (the Corn King); Feeding and Management of the Dairy, H. B. Gurler; Things Are Not as They Used to Be, F. J. VanMatre; election of officers and delegates to State Institute.

Officers elected for the ensuing year: President, George A. Hunt, Greenwood; secretary, M. Zimbleman, Marengo; treasurer, H. T. Thompson, Huntley.

Average daily attendance, 400; cost of institute, \$143.20.

MCLEAN COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Bloomington January 10, 11, 12, 1899. Officers: President, L. E. Skaggs, Danvers; secretary, H. Ringhouse, Bloomington.

Program—Tuesday morning 10 o'clock.

Piano duet, Misses Hollingshead and Iliff; America, by the audience; prayer, Rev. G. E. Scrimger, Bloomington; remarks by the retiring president, Captain S. N. King; remarks by president-elect, L. E. Skaggs; recitation, Miss Virginia Gray, Lexington; Paper on Poultry, Israel Root, Bloomington; discussion; vocal solo, Clark Stewart; intermission.

Afternoon, 1 o'clock.

Violin solo, Christine Brakel; prize essay, Best and Most Numerous Ways of Preparing Corn and Its Products for the Table, by some young lady under twenty-five years of age living on a farm in this county; discussion; vocal solo; prize essay, How the Saloon Injures the Farmer, by young man under twenty-five years of age and living on a farm in this county; Clover Culture, Fred H. Rankin, Athens, Ill.; discussion; report from Farmers' Congress, Noah Franklin, Lexington.

Evening, 7 o'clock.

Violin solo, Christine Brakel; recitation, Lulu Bishop, Bloomington; lecture, illustrated by stereopticon, subject, Road Design and Construction Adapted to McLean County, J. G. Melliush, civil engineer, Bloomington; piano solo, Stella Dunn; lecture, Good Roads and State Aid, Mr. Will A. Connelly, Danville; discussion, Hon. James S. Ewing, Noah Franklin, E. Hester and others.

Wednesday morning, 10 o'clock.

Piano solo, Myrtle Hollingshead; prayer, Rev. George A. Brown, of Bloomington; Selection of Farm Seeds and Experiments in Corn Culture, Prof. P. H. Holden, Urbana, Ill.; discussion; recitation, Miss Helen Scrogin, Lexington; Dairy Farming, Hon. T. H. Clarkdon, Keyser, West Virginia; discussion; vocal solo,

L. E. Skaggs, Danvers.

Afternoon, 1 o'clock.

Woman's session, Mrs. S. N. King, presiding; violin solo, Christine Brakel; recitation, The Calf Path, Madge Sachs, Towanda; paper, Enemies to Our Homes, Miss D. Bell Denham, Bloomington; discussion; selected reading, Nibsy's Christmas, Miss Permelia C. Mahan, Lexington; Domestic Economy, Mrs. Nellie S. Kedzie, Peoria; vocal solo, Mae Iliff.

Evening, 7 o'clock.

Violin solo, Christine Brakel; recitation, Pet at the Fair, Florence Richards, Normal; lecture, The Farmer Robbed and Who Does It, Hon. T. R. Clarkadon, Keyser, W. Va.; French horn solo, Charles D. Williamson, Towanda.

Thursday morning, 10 o'clock.

Mr. P. Lautz, vice president, to preside at this session; piano solo, Mabel Kelly; prayer, Rev. E. B. Barnes, Normal; Bee Culture, H. W. Funk, Normal; discussion; French horn solo, Charles D. Williamson, Towanda; Sheep Husbandry, John Kissack, Farmer City; discussion; vocal solo.

Afternoon, 1 o'clock.

Violin solo, Christine Brakel; Fruit on the Farm, Capt. H. Augustine, Normal; discussion; recitation, Brother Ben, Miss Angeline Mahan, Lexington; election of officers and adoption of resolutions; sale of exhibits at auction.

Officers elected for the ensuing year: President, D. R. Studdlefield, Covell; secretary, J. M. Anthony, Bloomington; treasurer, W. J. Baldrige, Bloomington.

Average daily attendance, 2,000; cost of institute, \$242.79.

MENARD COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Petersburg, January 17-18, 1899.

Officers: President, H. A. Wood, Petersburg; secretary, I. H. Beard, Petersburg.

Program.—Tuesday morning, 9:30.

Music; prayer, Rev. Thos. J. Stevenson; address of welcome, Thos. P. Reep; response President H. A. Wood; How I Manage 100 Ewes, A. N. Curry, Petersburg; Tillage, W. E. Johnson, Athens; Wheat Culture, Peter P. Grosboll, Petersburg.

Tuesday afternoon, 1:30.

Music, Miss Cora Turner, Virginia; Cattle Raising, Hon. A. P. Grout, President Illinois Live Stock Breeders' Association, Winchester, Illinois; discussion; Corn Cultivation Experiments, Prof. P. G. Holden, Prof. Agricultural Physics, University of Illinois, Champaign; discussion.

Tuesday evening, 7:30.

Music, Rock Creek Orchestra; reading of prize essay by pupil under fourteen years of age, upon the subject: Children's Mission on the Farm; address, Our Public Schools—their Present Status and the Changes Suggested for their Improvement, Prof. Theodore H. Haney, Greenview; music, Manhattan quartette; reading of first prize essay by pupil from fourteen to eighteen years of age, upon the subject: The Sunny Side of Farm Life; address, The Farmer Boy—His Possibilities, and What Shall We Do With Him? Elder C. E. Smoot, Petersburg.

Wednesday morning, 9:30.

Music, Mandolin Club; prayer, Rev. W. G. Archer; Small Fruit on the Farm, A. D. Alkire, Sweetwater; paper, Hardships of the Farmer's Wife and How to Overcome Them, Mrs. Lizzie Waring; relation of the Chatauqua to the Farmer, Hon. Homer J. Tice, President Old Salem Chatauqua Association.

Wednesday afternoon, 1:30.

Music, Lawrence and Julia Watkins; Agricultural Education, Prof. E. Davenport, Dean of College of Agriculture and Director of Agricultural Experiment Station, Champaign, Illinois; The Farmer's Daughter, Mrs. L. G. Chapman, Freedom, LaSalle county, Illinois; Why Should the Boy Leave the Farm? Percy Stone, Bradfordton, Illinois; election of officers.

Officers elected for the ensuing year: President, H. A. Wood, Petersburg; secretary, I. H. Beard, Petersburg; treasurer, C. E. Smoot, Petersburg.

Average daily attendance, 500; cost of institute, \$107.25.

MERCER COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Aledo, January 17-18, 1899. Officers—President, P. M. Carnahan, Aledo; secretary, R. M. Pinkerton, Viola.

Program—Tuesday, January, 17, 1899.

9:30 a. m., invocation, Rev. A. M. Stocking; Does Mutual Farmers' Insurance Pay? opened by Geo. Werts, secretary Abington Insurance Co., Paul Ketsale, secretary Hamlet Insurance Co., Geo. W. Christy, secretary Rivoli Insurance Co.; discussion by Geo. Senton, Elisha Lee and others. Dinner. 1:40 p. m., music; invocation, Rev. W. M. Story; declamation; music; address, Mrs. H. M. Dunlap, of Savoy, subject "Domestic Science."

Organization of a Ladies' Domestic Science Association.

Wednesday, January 18, 1899.

9:30 a. m., invocation, Rev. Davis; music; Roads and Vehicles, W. C. Sample, of Aledo, W. B. Frew, of Aledo, S. T. K. Prime, Dwight, Illinois; question box. Dinner. 1:30 p. m., invocation; election of officers; miscellaneous business; entomology, S. A. Forbes, of Urbana, State entomologist; Question box.

Officers elected for the ensuing year: President, P. M. Carnahan, Aledo; secretary, R. M. Pinkerton, Viola; treasurer, J. G. Haverfield, Joy. Average daily attendance 50. Cost of institute \$72.42.

P. M. Carnahan, Aledo.

R. M. Pinkerton, Viola.

MONROE COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Waterloo, December 20-21, 1898. Officers: President, Louis Vogt, Waterloo; secretary, G. W. Franklin, Waterloo.

Program—December 20 and 21.

Insurance to Farmers, Hon. W. B. Rundle, Clinton; How to Improve the Roads—Hon. J. W. Drury, of Waterloo; Query box; Hog Raising and Feeding for Market, Mr. Balzer Schmidt, of Waterloo; Poultry, Mr. Herman Mueller, of Renault; Feeding Cattle for Market, Mr. Philip Mauss, of Waterloo; Sheep Raising, Mr. Thomas C. Sterrett, of New Design; Dairy Farming, Mr. W. C. Davis, of Fairfield; Clover, and the Way of Raising It, Mr. F. Parrott, of Red Bud; Counteracting the Damage of Clinch Bugs, Hon. W. R. Kimssey, of Tamaroa.

Officers elected for the ensuing year: President, John G. Schneider, Harrisonville; secretary, W. G. Harris, Kidd; treasurer, Phillip Mans, Waterloo. Average daily attendance not reported. Cost of institute \$21.75.

MONTGOMERY COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Hillsboro, October 25, 26 and 27, 1898.

Officers: President, William A. Young, Butler; Secretary, E. C. Richards, Hillsboro.

Program—Tuesday, October 25; morning session, 10 o'clock.

Prayer, Rev. James H. Hawk; music, Hillsboro Quartet; address of welcome, Hon. Thos. M. Jett, response, Vice-President Ed. Grimes; music, violin solo, Miss Myrtle Starr, president's address, Hon. Wm. A. Young; paper, Sheep Husbandry, Mark Stoman, White Oak; discussion; adjourned to 1:30 p. m.

Afternoon session, 1:30 o'clock.

Music, Clear Spring Quartet, instrumental, paper, Cattle Feeding, Henry Hitchings, Raymond; address, Cattle Raising, P. Howard White Oak; discussion; address, Our Swine Industry, S. Smith, Sorento discussion; paper, Farm Homes, E. C. Jones, M. D., White Oak; music, Clear Spring Quartet; paper, Breeding and Care of Horses, S. C. Wagoner, Pana; discussion; paper, Citizenship of Women, Part 1, Mrs. Katharine Stahl, Moro; adjourned to 7:30 p. m.

Evening session, 7:30 o'clock.

Music, Hillsboro Quartet; paper, Citizenship of Women, Part 2, Mrs. Katharine Stahl; music, clarionet solo, Walter Tobin; address, The New Farmer, C. J. Upton, Barnett; music, piano solo, Miss Grace Guller, Raymond; recitation, Miss Ina Rush; music, Hillsboro Light Guard Band, adjournment.

Wednesday, October 26, morning session, 9 o'clock.

Music, Hillsboro Quartet; prayer, Rev. A. H. Reat; paper, Horticulture, H. Kelly, Irving; address, Horticulture For The Farm, G. W. Fangerroth, Edwardsville; music, Hillsboro Male Duet; address, Small Fruits for the Farm, E. S. Fursman, El Paso; discussion; question box; music, piano solo, Miss Grace Guller; adjourned to 1:30 p. m.

E. C. Richards, Hillsboro.

School session, 1:30 p. m., County Superintendent Groner presiding.

Music, male quartet, Ware's Grove; paper, The Relation of the City High Schools to the Country Schools, Prof. Josiah Bixler; address, The Cheap Teacher, Prof. J. E. Wooters, Litchfield; music, male quartet, Ware's Grove; paper, Duties of School officers, Prof. W. L. Curry, Fillmore; discussion, Supt. W. H. Groner; address, What Can the County Board Do to Help the County Schools, Prof. J. L. Traylor, Coffeen; adjourned to 7:30 p. m.

Evening session, 7:30 o'clock.

Music, Hillsboro Quartet; recitation, Miss Blanche Elizabeth Day, Raymond; music, Miss Myrtle Starr, violin solo; recitation, Miss Agnes Dryer, Butler; music, vocal solo, Miss Mollie Hughes, Raymond; address, Corn and It's Products, E. S. Fursman; music, Hillsboro Light Guard Band; adjournment.

Thursday, October 27, morning session, 9 o'clock.

Prayer, Rev. Ezra Keller; music, piano solo, Miss Myrtle Strider, Raymond; paper, Farm Telephone, J. W. Osborn, Butler; discussion; address, Field Peas, Fred Morrison, Ramsey; discussion; music, vocal solo, Miss Mollie Hughes; paper, Poultry for Profit, Wm. Black, Donnellson; A. G. Butler, Fillmore; Perennial Fever, Alf. Williams; adjourned to 1:30 o'clock.

Afternoon session, 1:30.

Music, Miss Edna Kelly and Miss Charlott Berry; address, Value of Sorghum for Feed and Profit, G. W. Rainey, Butler; paper, Fertilization of our Farms—How? Arthur Ware, Butler; music, piano solo, Miss Lelia Fisher; address, Practical Economy, Chas. Baxter; election of officers and other business of County Institute; adjournment.

Officers elected for the ensuing year: President, Ed. Grimes, Raymond; Secretary, E. C. Richards, Hillsboro; Treasurer, A. A. K. Sawyer, Hillsboro.

Average daily attendance, 400. Cost of institute, \$25.

MORGAN COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Jacksonville, October 19, 20, 21, 1898.

Officers: President, A. C. Rice, Arnold; secretary, H. L. Doan, Jacksonville.

Program.—Wednesday morning, 10:00 a. m.

Music, America; prayer, Rev. S. W. Thornton; song, by Glee Club; address of welcome, M. P. Ayers; response, President A. C. Rice; song, by Glee Club; Benefit of the Farmer's Institute, A. P. Grout, Winchester.

Wednesday afternoon, 1:30 p. m.

Music, vocal solo, Miss Mabel Okey; Hygiene on the Farm, Dr. W. K. McLaughlin; piano solo, Miss Glendora Thompson; Cattle Feeding, S. D. Masters; discussion, A. P. Grout, John Stewart, Samuel Dinwiddie; Milk Cows and their Care, W. H. Stevenson; report of some of the newer varieties of small fruits in the Morgan County Experimental Station, H. L. Doan; vocal solo, Miss Mabel Okey.

Thursday morning, 9:30 a. m.

Prayer, Rev. G. L. Snively; song, R. M. Hockenhull; Culture and Use of Small Grains on the Farm, Jas. Ranson, Jr.; piano solo, Miss Laura Luken; Points on Pork, Fred H. Rankin, Athens, Illinois; song, R. M. Hockenhull; Clover, Wm. Rowe; discussion, Wm. Mortimer.

Thursday afternoon, 1:30 p. m.

Piano solo, Miss Nettie McDougall; Education of Country Boys and Girls, What Shall It Be? Prof. F. H. Hall; recitation, Miss Clerk, of Conservatory Faculty; Poultry on the Farm, Mrs. H. J. Westlake, Pittsfield; vocal solo, Miss Weller; Conveniences in the Country Home.

Friday, 9:30 a. m.

Corn Culture, Frank Nuness, Chatam; Fruits on the Farm and their Winter Care, H. M. Dunlap, Savoy; The Farmer's Garden, L. H. Callaway; election of officers.

Friday afternoon.

Rotation of Crops, E. A. Giller, Whitehall; Butter Making on the Farm, Mrs. J. N. Cully; Teaching Domestic Economy, Mrs. Nellie S. Kedzie, Peoria.

Officers elected for the ensuing year: President William Stevenson, Jacksonville; secretary, A. C. Rice, Arnold; treasurer, Richard Wood, Jacksonville.

Average daily attendance, 400; cost of institute, \$88.73.

MOULTRIE COUNTY FARMERS' INSTITUTE.

No meeting was held the past year.

Officers last elected: President, T. H. Crowder, Bethany; secretary, O. B. Lowe, Sullivan; treasurer, Chas. Schumann, Sullivan.

OGLE COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Forreston, February 1-2, 1899.

Officers: President, Jacob F. Swank, Forreston; secretary, John Small, Forreston.

Program.—February 1, 1:00 p. m.

Points on Pork, Fred H. Rankin, Athens; Corn and its Commercial Products, E. S. Fursman, El Paso; Cow for the Farmer, James Graham, Stillman Valley.

Evening session.

Music; prayer; address, Farm Homes, E. S. Fursman; followed by a musical and literary entertainment.

February 2, morning session.

Horse of the Present as Compared with Thirty Years Ago, Chas. Walkup; Rural Influence, Mrs. E. L. Gleason, Mendota; Farming as a Business, Dwight Herrick, Rochelle; Country Roads, J. H. More, Polo.

Afternoon session.

Cultivation of Corn, Prof. P. G. Holden, University of Illinois; The Needs of the Agricultural College, A. F. Moore, Polo; The Farmer and His Wife as Business Partners, Mrs. C. W. Shippy, McConnell; Varieties of Fruit for Northern Illinois, H. R. Cotta, Freeport; Why and How Should Horticulture be Taught in Our Rural Schools, A. W. Brayton, Mt. Morris; New Fruits and How to Start Them, D. J. Piper, Forreston.

Officers elected for the ensuing year: President, Charles T. King, Kings; secretary and treasurer, Dwight Herrick, Rochelle.

Average daily attendance, 650, cost of institute, \$91.93.

PEORIA COUNTY FARMERS' INSTITUTE.

No meeting was held the past year. Officers appointed for the ensuing year: President, Charles T. Wood, Alta; secretary and treasurer, Arthur Yates, Dunlap.

PERRY COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Pinckneyville, December 22-23, 1898. Officers: President, W. C. Braden, Cutler; secretary, W. T. White, Cutler.

Program—Thursday, December 22.

Morning session.

Song; prayer; address of welcome by Mayor Mead; response by President W. E. Braden; Why I Am a Farmer, by Wm. H. Jackson, Tamaroa; discussion; Perry County and Its Products, by Edward Timpner, Pinckneyville; discussion; How I Raise Wheat, by Joseph Gilmour, Coulterville; discussion; appointment of committees; adjournment for dinner.

Afternoon session.

Music; Dairying, by J. C. Ritchey, Marissa; discussion; County Mutual Insurance, by W. B. Rundell, Clinton; discussion; Feeding Cattle in Perry County, by Wm. H. Milligan, Pinckneyville; adjournment.

Evening session.

Music; Fruit at Home, by Mrs. L. N. Beal, Mt. Vernon; music; adjournment.

Friday, December 23.—Morning session.

Prayer, by Rev. R. S. Feagles, Cutler; music; declamation, by Master Milligan; Habits on the Farm, by Rev. S. Feagles, Cutler; An Ideal Home on the Farm, by Mrs. Etta Cunningham, Pinckneyville; Stock Peas and Soja Beans, by A. A. Hinckley, Du Bois, and I. B. Maclin, Du Quoin; discussion; How to Utilize Fruit on the Farm to Best Advantage, by J. W. Staunton, Richview; discussion; Trimming and Planting a Young Orchard, F. L. Williams, Tamaroa; music, solo by C. E. Malan, entitled "Anchored"; Domestic Economy, by Mrs. M. H. Dunlap, Savoy; Scoring the Hog, by W. H. Ker, Prairie Du Rocher; adjournment for dinner.

Afternoon session.

Music; The Farmer's Horse, by M. T. Milligan; reports of committees: Sheep Raising in Perry County, by F. A. Williams, Tamaroa; discussion; opening question box; adjournment.

Officers elected for the ensuing year: President, F. A. Williams, Tamaroa; secretary, F. C. Paige, Tamaroa; treasurer, F. P. Anderson, Pinckneyville. Average daily attendance 88. Cost of institute \$72.70.

PIATT COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Monticello, January 17-18, 1899. Officers: President, C. J. Bear, Monticello; secretary, Thomas Lamb, Jr., Bement.

Program—Tuesday morning.

Devotional exercises, Rev. W. S. Calhoun; address of welcome, C. A. Tatman; response, Phil Conard; president's address; secretary's report, Thomas Lamb, Jr.; treasurer's report, J. P. Ownby; report of delegates to State Institute, C. W. Piatt, Walter Hurd; Farm Drainage, C. B. Moore; Farm Management, F. V. Dilatush; discussion.

Afternoon session.

Quartet; Our Farmers' Girls, Miss Lucy Thornton; declamation, Miss Grace Handley; solo, Mrs. Frank Bales; paper, Miss Bessie Heath; How to make Money Raising Poultry, Mrs. Carter, of Hammond; instrumental solo; Domestic Economy, Mrs. Nellie L. Kedzie; solo, Miss Kathryn Plunk.

Evening session.

Music; A Successful Life, S. W. Allerton; discussion; music; Farming as a Field for Young Men, W. E. Lodge; music; discussion; The Farmer as a Citizen, Judge F. M. Shonkwiler.

Wednesday morning.

Music; devotional exercises, Rev. H. G. Gleiser; The Horse, A. S. Burr; Cattle, E. P. Thompson; Hogs, Breed, Feed and Management, G. L. Burgess; discussion; music; Poultry, Incubator and Brooder, Rev. J. O. Kirkpatrick; Tetanus, Dr. Frank Bales; election of officers for ensuing year.

Afternoon session.

Music; Horticulture on the Farm, Prof. J. C. Blair; The Business Side of Farming, W. C. Hubbard; The Mutual Interest of the Merchant and Farmer, William Haggard; The Farm Orchard, John Ritchie; music; The Benefit of Clover Culture, J. T. Churchill; the Chicago Grain Trust, the Farmer's Worst Enemy, S. H. Greely.

Evening session.

Music; The Land Question, W. H. Burke; discussion; music; open parliament; The Effect of Our Expansion Policy on Our Agricultural Interests, W. M. Dewees, F. A. Odernheimer, M. R. Davidson, F. V. Dilatush.

Officers elected for the ensuing year: President, C. J. Bear Monticello; secretary, Thomas Lamb, Jr., Bement; treasurer, J. P. Ownby, Monticello.

Average attendance not given. Cost of institute \$76.92.

PIKE COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Pittsfield, Dec. 15-16, 1898.

Officers.—President, H. J. Westlake, Pittsfield; secretary, W. A. Reed, Pittsfield.

Program, Thursday, Dec. 15, 1898.—

Morning session.

Music, Field's orchestra, Pittsfield; prayer, Elder R. H. Thrapp, pastor Christian church, Pittsfield; address of welcome, Dr. Duffield, Mayor City of Pittsfield; response, H. J. Westlake, chairman committee on resolutions; appointment of committees; address, Our Sheep Industry, W. D. Shinn, Summer Hill; discussion, Elmer Grigsby, Newburg; C. G. Winn, Griggsville.

Afternoon session.

Music, Field's orchestra, Pittsfield; address, Clover and Cowpeas, E. Davenport, Dean of the College of Agriculture; discussion, E. Whittleton, Barry, W. R. Willis, Pittsfield; selections on the piano, C. E. Roberts, rector St. Steven's church, Pittsfield; address, Fancy Poultry, Mrs. M. Y. McMahon, Griggsville; discussion, Mrs. M. A. Westlake, Mrs. H. Cohenour, Pittsfield; question box.

Evening session.

W. A. Reed, Pittsfield.

Friday, Dec. 16, 1898.—Morning session.

Music, Field's orchestra, Pittsfield; prayer, Rev G. W. Bates, pastor First M. E. church, Pittsfield; address, Corn Culture, Hon. E. S. Fursman, El Paso; discussion, T. N. Hall, W. R. Willsey; address, Cattle Feeding, C. G. Winn, Griggsville; discussion, A. P. Grout, Winchester; I. J. Dyer, Time.

Afternoon session.

Music, Field's orchestra, Pittsfield; address, Points on Pork, Fred H. Rankin, secretary Illinois Live Stock Breeders' Association; discussion, Thos. Pence, New Salem; John W. Dorsey, Perry; selections on the piano, C. E. Roberts, rector of St. Steven's church, Pittsfield; address, Small Fruit on the Farm, R. Perry, Griggsville; discussion, J. C. Newport, Newburg; A. S. Archer, Pittsfield; question box.

Officers elected for the ensuing year.—President, J. M. Bush, Pittsfield; secretary, W. A. Reed, Pittsfield; treasurer, W. R. Wilson, Pittsfield.

Average attendance, 300, cost of Institute, \$102.60.

POPE COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Golconda, Nov. 18, 19, 1898.

Officers.—President, John H. Hodge, Golconda; secretary, Geo. B. Baker, Golconda.

Program, Friday, Nov. 18, 10:00 A. M.

Song; prayer; address of welcome, Judge D. G. Thompson; response, J. N. Maynor; How to Deal with Smut, John P. Stelle, Dahlgren, Ill.; Stock Peas and Clover, J. N. Maynor, Geo. Gebauer.

Friday afternoon.

Music; Care of the Orchard—Adaptability of Fruits to Our Soil, J. P. Stelle, G. M. Hodge; Farmers' Institute Work—Its Value, J. R. Steagall, Henry Walter.

Saturday, Nov. 19, 9:30 A. M.

Music; Fertilizer—Value, Alonzo Floyd, Jack Sutherland; How to Deal With Insects Injurious to Our Crops, S. A. Forbes.

Noon.

Health Conditions—House and Family, Barn and Stock, Prof. Arthur Roberts, John P. Stelle: election of officers for year 1899.

Officers elected for the ensuing year.—President, Henry Waltersburg; secretary, Alonzo Floyd, Golconda; treasurer, H. W. Wellman, Golconda.

Average daily attendance, 40; cost of Institute, \$33.25.

PULASKI COUNTY FARMERS' INSTITUTE.

No meeting was held the past year.

Officers elected for the ensuing year.—President, F. Graves, Villa Ridge; secretary and treasurer, H. L. McGee, Villa Ridge.

PUTNAM COUNTY FARMERS' INSTITUTE AND THE FOURTEENTH CONGRESSIONAL INSTITUTE, MAGNOLIA, JANUARY 11, 12, 13, 1899.

Officers of the County Institute: President, J. A. Harper, Granville; secretary, W. B. Mills, Clear Creek; director of the district, Oliver Wilson, Magnolia.

Program Wednesday morning, 10:30.

Prayer, Rev. J. C. Zeller; music; address of welcome, Dr. O. F. Taylor; response, J. Miller, Wenona; president's annual address, J. A. Harper; recess; dinner at 12 m.

Afternoon session, 1:30

Music; paper, The House We Live In, Mrs. Nellie McNabb, Mt. Palatine; discussion, Mrs. Lyle Durley, Hennepin; John Swaney, Clear Creek; paper, Domestic Education of Children, Mrs. Naomi Williams, Putnam; discussion, Mrs. M. Reginald, Cottage Hill; Oliver Wilson, Magnolia; paper, Science in the Kitchen, Mrs. Laura Thornton, Magnolia; discussion, Mrs. Anna S. Wilson, Magnolia; Miss Alice Tomlinson, Clear Creek; paper, Government in the Home, Mrs. Mary Harrison, Granville; discussion, Mrs. John Kays, Henry; Mrs. Lucy Swindler, Magnolia; address, Pure Food, Prof. P. G. Holden, professor of agricultural science, Champaign, Ill.

Evening session, 7:30.

Recitation contest, by the pupils of the public schools of Putnam county.

Thursday morning, 8:30.

Prayer; music; address, The Necessity and Relation of the County, District and State Institutes, Oliver Wilson; paper, Sugar Beet Industry, Prof. P. G. Holden, Champaign; paper, Feeding Hogs for Market, Ralph Allen, Delavan; discussion, E. B. Cutler, Hennepin; W. G. Griffith, Clear Creek; question box, James A. McNabb; recess; dinner, 12 m.

W. B. Mills, Clear Creek.

Afternoon session, 1:30.

Music; paper, The Horse for the Farmer to Raise, J. W. Thornton, Magnolia; discussion, Herman Von Bedenfeldt, Granville; Robert Burgess, Wenona; reading, Miss Maud Mills, Magnolia; paper, Our Country Roads, James H. Moore, Polo, Ill.; general discussion; paper, The Value of Pedigree in Seed Corn, J. H. Beagley, Sibley, Ill.; discussion, H. K. Smith, Mt. Palatine, Elmer Quinn, Henry.

Evening session, 7:30.

Music, band; vocal music, male quartet; address, An Illinois Farmer, George F. Bell, lecturer, State Grange, Loxant; music; reading, Miss Maud Mills; address, The Township High School, Prof. Stratton D. Brooks, president township high school, La Salle.

Friday morning, 9:30.

Prayer; music; paper, Country Telephones, Judge McNabb; discussion, Harry Winters, Wenona; James Barnhard, Granville; paper, Farm Dairy, Ralph Allen, Delavan; paper, Beef Breeds vs. Dairy Breeds, I. M. Forbes, Henry; discussion, George Gregory, Magnolia; J. A. Williams, Henry; recess; dinner, 12 m.

Afternoon session, 1:30.

Music; election of officers; paper, Raising and Feeding Forage Crops, A. D. Fisher, Granville; discussion, O. Bumgarner, Mt. Palatine; A. J. Robinson, Granville.

Officers elected for the ensuing year: President, E. B. Cutler, Hennepin; secretary and treasurer, James McNabb, Mt. Palatine.

Average daily attendance 300; cost of institute, \$118.20.

RANDOLPH COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Sparta December 21-22, 1898. Officers: President, S. S. Taylor, Sparta; secretary, J. M. Clark, Sparta.

Program—Wednesday morning.

Music; address of welcome and response; appointment of committees.

Afternoon session.

Music; Hired help on the Farm, W. T. White, Cutler; Mutual Insurance, W. B. Rundle, Clinton; Profit of Vegetable Growing, W. W. Thomas, Makanda; The Farm and Its Live Stock, Warren N. Wilson, Baldwin.

Evening session.

Music; The Country School, W. E. McDill, Sparta; music; Beautifying the Home, H. E. McKelvy; The Advantages of a Street Fair, Matt Sproul.

Thursday morning.

Wheat Culture, Fred Helms, Belleville; Cow Peas, T. J. Cross, Shilo Hill; Cow Peas and Soja Beans, A. A. Hinckle, DuBois.

Officers for the ensuing year: President, M. A. Dennis, Sparta; secretary, J. M. Clark, Sparta; treasurer, J. W. Caldwell, Sparta.

Average daily attendance, 375; cost of institute, \$68.90.

RICHLAND COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Olney, February 2-3, 1899.

Officers: President, W. E. Poland, Olney; secretary, Frank Britton, Calhoun.

Program.—Thursday, February 2, 1899.

Music, by Berryville Quartette; prayer, Rev. Swartz; address of welcome, Mayor Senseman; response, W. E. Poland; papers on Domestic Science, by Mrs. Chas. Mace, Olney; Mrs. Geo. Horrall, Olney.

Afternoon session, 1:00 p. m.

Music, by quartette; recitation; The Poultry Industry, Mrs. Rose Carr, Lis, Illinois; Dairying in Richland County, E. E. Beebe, Parkersburg; Hogs, Breeding for Profit, Silas Barker, Parkersburg; Best Method of Feeding Hogs for Profit, Ed. Phillips, Olney; paper on Farmer's Institute Work, by D. H. Shank, Paris.

Evening session.

Music, by quartette; recitation; Character Building in our Public Schools, Rev. W. C. Swartz, Olney; Education for Citizenship, Prof. J. W. Emmerson, Albion; music, by Leaf-ton quartette.

Friday, February 3, 1899.

Music, by quartette; prayer; music; Baby Beef, or How to Raise Cattle for Profit, Robert Kingsbury, Pinkstaff; paper, Bring Up Our Soil, R. C. Morris, Olney.

Afternoon session, 1:00 p. m.

Music, by quartette; recitation; Insects Injurious to Corn; Prof. Forbes, Champaign; paper, How Will We Interest our Farmer's Family in the Institute, Mrs. Parker Jackson, Calhoun; recitation; music by quartette; election of officers.

Officers elected for the ensuing year: President, W. E. Poland, Olney; secretary and treasurer, Frank Britton, Calhoun.

Average daily attendance, 400; cost of institute, \$15.00.

ROCK ISLAND COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Reynolds, January 25-26, 1899.

Officers: President, F. H. Caldwell, Milan; secretary, B. F. Founataine, Andalusia.

Program.—Wednesday forenoon.

Prayer, Rev. A. Harper; address of welcome, J. G. Osborne; response, Thos. Campbell; Horticulture, C. A. Elwell; Culture of Apples, M. D. Hauberg; Pears, Plums and Peaches, W. C. Wilson; Berries and Grapes; Eli Corbin; discussion.

Afternoon session.

Music; Taxation, Revenue Law, Geo. W. McCaskrin; Evils of, L. O. Jahns; Remedies, ———; discussion; reports of delegates to State Institute.

Evening session.

Music; recitation; Clarence Walthers; Agricultural Education, Prof. S. M. Coddington, Prof. H. A. Ruger; discussion; music.

Thursday morning.

Prayer, Rev. J. E. Millard; Swine Industry; Breeding and Raising, W. H. Ashdown; Feeding and Marketing, A. F. Hollister; Profit and Statistics, W. S. McCullough; discussion.

Afternoon session.

Music; Farmer's Organization; History of, S. W. Heath; Necessities of, B. F. Fountaine; Advantages of, Oliver Wilson, Master State Grange; The Farm Home—Morning, Mrs. J. G. Osborne; Afternoon, Mrs. S. M. Coddington.

The Tenth Congressional meeting was held at Moline, February 8-10, 1899. J. H. Coolidge, Director, Galesburg.

Program.—Wednesday morning, February 8.

Meeting of delegates at Keator House.

Afternoon, 1:30.

Prayer, Rev. W. H. Dilworth; music, address of welcome, on behalf of the city, the Moline Business Men's Association, and the Manufacturers of Moline; response, J. H. Coolidge, Galesburg, Illinois; Agricultural Education, Prof. Holden, Champaign, Illinois; Farming as a Business, Dwight Herrick, Rochelle, Illinois.

Evening.

Visiting Industrial Home Fair.

Thursday morning, February 9.

Farmer as a Citizen, J. M. Hollingsworth, Ridge Farm, Illinois; Benefits of Farmer's Institute, G. A. Willmarth, Seneca, Illinois.

Afternoon, 1:30.

Domestic Economy, Nellie Kedzie, Peoria, Illinois; Woman and the Farm, Mrs. Julia Mills Dunn, Moline, Illinois.

Evening, 7:30.

Our Poultry Industry, J. M. Hollingsworth, Ridge Farm, Illinois; Postal Savings Banks, G. W. Curtice, Freeport, Illinois.

Friday morning, February 10.

Sugar Beets, Prof. Holden, Champaign, Illinois; Fruits and Vegetables on the Farm, Dwight Herrick, Rochelle, Illinois.

Afternoon, 1:30.

Revenue Laws, George McCaskrin, Rock Island, Illinois; Evils of Revenue Laws, L. O. Jahns, Moline, Illinois; Remedies of Revenue Law, Marshall Beck, Moline, Illinois.

Officers elected for the ensuing year: President, W. H. Wheaton, Reynolds; secretary, Eli Corbin, Carbon Cliff; treasurer, F. H. Caldwell, Milan.

Average daily attendance at county meeting 300; at congressional meeting, 75; cost of county meeting, \$39.29; congressional meeting, \$69.16.

SALINE COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Harrisburg, December 20 and 21, 1898.

Officers: President, John A. Jones, El Dorado; Secretary, R. A. Hall, Harrisburg.

Program—Thursday, 10 a. m.

Music; prayer, Elder F. P. Turner, Harrisburg; address of welcome, Mayor Whitley, Harrisburg; response, J. J. Jones, President of Institute, Eldorado; music; address, Institute Work, J. P. Stelle, Dahlgren; music; address, How Farmers Can Make More Money, R. S. Marsh, Harrisburg; address, Wheat Culture, Wm. H. Parish, Sr., Harrisburg; music; address, The Effects of Pasturing Bottom Land, Geo. E. Burnett, Harrisburg; adjournment.

Thursday afternoon.

Music; address, Fruit on the Farm, John Odum, Harrisburg; address, Insects Injurious to Corn, Prof. S. A. Forbes, State Entomologist, Urbana; music; address, General Farming, J. P. Stelle, Dahlgren; address, The Small Farm, John H. Wilson, Harrisburg; music; adjournment.

Thursday evening.

Short Talks, A. G. Abney, W. F. Scott and others.

Friday, 10 a. m.

Music; prayer, Rev. C. W. Wynant, Harrisburg; address, Raising Hogs for Profit, W. C. Neal, Eldorado; address, Raising Cattle for Profit, W. H. Pankey, Harrisburg; music; address, The Ideal Farm Horse, Hiram Anderson, Harrisburg; address, The Profits of Poultry, W. T. Glass, Harrisburg; music; adjournment.

Friday afternoon.

Music; election of officers; address, What Makes Farming Unprofitable, John J. Parish, Harrisburg; music; address, Educated Brains for the Farm, Elder W. S. Blackman, Harrisburg; address, How to Keep our Boys on the Farm, William A. Stout, Harrisburg; adjournment.

Officers elected for the ensuing year: President, J. J. Jones, Eldorado; Secretary, Hiram Anderson, Harrisburg; Treasurer, W. E. Mitchell, Eldorado.

Average daily attendance, 37. Cost of institute, \$22.92.

SANGAMON COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Williamsville, October 11, 12, and 13, 1898.

Officers: President, Ira S. Wright, Williamsville; Secretary, James A. Stone, Bradfordton.

Program—Tuesday morning.

Address of welcome and response; Clover Culture, Leigh Mancy, Pasfield; Farm Orchards, John Upton, Springfield; Profit in Fruit Growing, H. Augustine, Normal.

Afternoon session—Woman's session, Mrs. John W. Groves, presiding.

Butter Making, Mrs. Eva Springer, Springfield; Woman's Work on the Farm, Mrs. J. W. Coffman, Mechanicsburg; address, Mrs. Nellie S. Kedzie, Peoria.

Evening session.

Literary and musical entertainment by the young people of Williamsville.

Wednesday, October 12, 1898.

Cattle Feeding, Titus Sudduth, Springfield; Points on Pork, Fred H. Rankin, Athens; Horse Breeding, George Williams, Athens; Breeding Fancy Poultry, S. T. Jones, Williamsville.

Afternoon session.

Education for the Farmer, Mrs. A. J. Bronson, Williamsville; Fellowship Among Farmers, Hon. Jas. R. Miller, Springfield.

Thursday morning, October 13, 1898.

Why the Boy Should Leave the Farm, Percy Stone, Bradfordton; Corn Growing, A. D. Schamel, Champaign; Rotation of Crops, Alex. Ernst, Bates.

Afternoon session.

Bee Keeping, Chas. E. Yocum, Sherman; Poultry on the Farm, Lewis, Larue, Williamsville; Sugar Beets, Geo. E. Lake, Williamsville; Farm Finances, Perry Poorman, Williamsville.

Officers elected for the ensuing year: President, J. F. Bird, Mechanicsburg; Secretary, James A. Stone, Bradfordton; Treasurer, L. H. Coleman, Springfield.

Average daily attendance, 500. Cost of institute, \$50.

SCHUYLER COUNTY FARMERS INSTITUTE.

The annual meeting was held at Rushville, 17, 18, 1898.

Officers.—President, James Teel, Rushville; secretary, J. H. Boice, Rushville.

Program.—Morning session, 9 o'clock.

Invocation, Rev. J. F. Wolfarth; song, Hughes family quartette; address of welcome, Mayor R. C. Amrine; response by the president, Hon. Jas. A. Teel; music, Hughes family.

Afternoon session, 1:30 o'clock.

Song, Hughes family; recitation, Miss Mayme Eifert; Mutual Insurance, or What the Schuyler County Mutual Insurance Company has Done and is Doing, J. W. Whitson; essay, The Farmer's Wife and Home, Mrs. G. L. Peckenpaugh; declamation, Master George Ritchey; address, Agricultural Education, by editor of the Western Plowman, Hon. David W. Wood; recitation, Miss Florence Cunningham; music, Hughes family.

Evening session, 7:30 o'clock.

Music, Hughes family; report of Delegates to State Institution, Hon. David Ward Wood; song, Hughes quartette. The remainder of the evening will be occupied by Prof. Kennedy and pupils.

Second day's program, Nov. 18.—Morning session, 9:00.

Music; address, County Fairs—Their Aims, Objects and Proper Management, Hon. G. W. Dean; declamation, Master Eddie Crandall; Rotation of Crops, L. F. King; discussion, opened by Hon. Jas. A. Teel; recitation; song, Hughes quartette; The Hog as a Factor in Civilization, M. W. Greer; music.

Afternoon session, 1:30 o'clock.

Music; election of officers; address, Fruits on the Farm, Capt. Henry Augustine; discussion, led by A. O. Lufkin; recitation, Miss Horner; address, Teaching Domestic Economy, Mrs. Nellie S. Kedzie; discussion; recitation; music.

Evening session, 7:30 o'clock.

Music; recitation; address, Illinois and Her Progress, G. W. Dean; music, Hughes family; address, Mrs. Nellie S. Kedzie; recitation; address, Capt. Henry Augustine; benediction, Rev. A. H. Hoffer.

Officers elected for the ensuing year.—President, Charles Doyle, Rushville; secretary, J. H. Boice, Rushville; treasurer, M. W. Greer, Rushville.

Average daily attendance, 700; cost of Institute, \$87.85.

SCOTT COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Winchester, Dec. 13, 14, 1898.

Officers.—President, Henry Miner, Winchester; secretary, M. R. Smithson, Winchester.

Program.—Tuesday, Dec. 13, 1:30 P. M.

Prayer, Rev. C. A. Taylor; opening address, Henry Miner; response, A. P. Grout, Corn Culture, E. S. Fursman, El Paso, Ill.; discussion, opened by Dan Haskell and J. T. Wilson; Cattle Feeding, A. C. Rice, Arnold, Ill.; discussion opened by J. C. Andras and M. B. Edmonson.

Tuesday, Dec. 13, 7:30 P. M.

Music; vocal music, Messrs. Ellis, Rimby, Markillie and Clark; recitation, Mrs. Mae Wilbur; lecture, The Farm Home, E. S. Fursman; music; song, Messrs. Ellis, Rimby, Markilla and Clark.

Wednesday, Dec. 14, 10:00 o'clock A. M.

Prayer, Rev. Thornton Clark; Breeding and Management of the American Roadster, Hon. John Landrigan, Albion, Ill.; discussion opened by John W. Taylor and E. Burrows; Points on Pork, Fred H. Rankin, Athens, Ill.; discussion opened by I. F. Coultas, Eli McLaughlin.

Wednesday, Dec. 14, 1:30 o'clock P. M.

Better Live Stock and How to Get It, Prof. E. Davenport, dean and director of College of Agriculture, Champaign, Ill.; general discussion; Clover, Wm. H. Rowe, Jacksonville, Ill.; discussion.

Wednesday, Dec. 14, 7:30 P. M.

Instrumental music; vocal music, Ellis, Rimby, Markillie and Clark; lecture, Domestic Economy, Mrs. Nellie S. Kedzie, Bradley Polytechnic Institute, Peoria, Ill.

Officers elected for the ensuing year.—President, Eli McLaughlin, Winchester; secretary, George R. McLaughlin, Winchester; treasurer, John W. Taylor, Winchester.

Average daily attendance, not reported; cost of Institute, \$92.04.

SHELBY COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Shelbyville February 1-2, 1900. Officers: President, Max Kleman, Shelbyville; secretary, J. F. Christman, Shelbyville.

Program—Wednesday morning, 10 o'clock

Music, quartet; invocation; song, quartet; welcome address, Judge Thornton; response, John Swengel; address, How to Supply and Maintain the Fertility of the Soil, Dr. C. G. Hopkins, Champaign.

Afternoon session, 1:30 o'clock.

Music, quartet; Mutual Insurance, discussion, by Samuel Harper, Assumption; W. E. Killman, Tower Hill; music; Fruit Culture, C. M. Sargent, Windsor; Spraying Fruit, M. D. Lane, Henton; Vegetable Cultivation, William Vanderpool; discussion; Poultry, Judge D. T. Heimlich, Jacksonville; paper, Poultry Raising on the Farm, Mrs. Arthur Pierce, Assumption; discussion.

Evening session, 7 o'clock.

Music; paper, Mrs. Dr. Simmons; address, Prof. G. P. Randle; Music in the School, Dr. Young; music; Ethics of School Room, Miss Hamlin; paper, S. B. Carr; music and recitations; Home, Sweet Home.

Thursday morning, 9 o'clock.

Afternoon session, 1 o'clock.

J. F. Christman, Tower Hill.

Election of officers; music; paper, Clippings from the Flock, I. L. Killam, Jr., Brunswick; discussion, by P. Roessler and J. H. Yencer

Ladies' program, 2:30.

Music, selected; address, Mrs. H. M. Dunlap; music, selected; paper, Mrs. Pauline Craig; Music in the Farm Home, Miss Barbara Glaster; report of committees.

Officers elected for the ensuing year: President, W. E. Killam, Tower Hill; secretary, J. A. Christian, Shelbyville; treasurer, W. S. Middlesworth, Shelbyville.

Average daily attendance, 500; cost of institute, \$45.56.

STARK COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Wyoming January 26-27, 1900. Officers: President, E. S. Buffum, LaFayette; secretary, Wilber P. Snare, Toulon.

Program—Thursday forenoon.

Prayer, Rev. J. G. Blair; address of welcome, Mayor Perkins; response, E. S. Buffum, LaFayette; Poultry on the Farm, George N. Buffum, LaFayette; discussion; Good Roads, R. S. Snare, Castleton; discussion, intermission.

Thursday afternoon.

Appointment of committees and other business; What is the Best Horse for the Farm, Alex. Smith, Wyoming; discussion; Geological History of Stark County, W. F. Nicholson, Toulon; discussion and questions; Clover, Jonathan Perlman, Chicago; discussion and questions; Bee Culture, J. N. Conger; adjournment.

Friday morning.

Report of committees and election of officers; Cattle as Rent Payers, Elon Steer, Castleton; recitation, The Practical Farmer, Maude Claybaugh, Toulon; question box; intermission.

Friday afternoon.

Introductory remarks, Mrs. Henry Nowlan, Toulon; The Advantages of an Auxiliary, Miss Nealie Perry, Toulon; discussion; recitation, Mrs. Frank Quinn, Toulon; Difficulty in Deciding, Miss Daisy N. Finley, West Jersey; discussion; recitation, Cousin John, Mrs. Milan Redding, Wyoming; The Atmosphere of the Farm Home, Mrs. Faank Ballentine, Wyoming; discussion; Canning Fruits and Vegetables on the Farm, Miss Helen Riehl, Alton; discussion and questions; question box; adjournment.

Friday evening.

Recitation, The Stratagem, Miss Maude Claybaugh, Toulon; A Convenient Country Kitchen, Miss Helen Riehl, Alton; discussion and questions; The Farmer's Garden, Jonathan Periam, Chicago; discussion and questions; music will be added to the program if it can be obtained.

Officers elected for the ensuing year: President, J. N. Conger, Wyoming; secretary and treasurer, Wilber P. Snare, Toulon.

Average daily attendance, 200; cost of institute, \$50.09.

ST. CLAIR COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Belleville, December 14, 15 and 16, 1898. Officers: President, W. H. Wilderman, Freeburg; secretary, Miss Laura Patterson, Belleville.

Program—Wednesday afternoon session, 1 p. m.

Opening remarks by the president; piano solo, Clarence Tufts; Value of Good Roads, Wm. Baltz; discussion; Rural Free Mail Delivery, A. B. Ogle; discussion. 7:30 p. m.—Vocal solo, Miss Katheryn West; recitation, Miss Mollie Kimberlin; Economy as An Art, Miss May Tate; recitation; Dignity of Our Calling, Miss Matilda Biebel; Fellowship of Farmers, Hon. J. R. Miller, Springfield.

Thursday morning session, 10 a. m.

Song, by audience; paper, I. R. Eyman; discussion; Horticulture, T. L. Williams, Tamaroa; discussion. 1 p. m.—Vocal solo, Mrs. Joseph McMurdo; General Farming, E. S. Helms; discussion; Prices, Wm. Schaumloeffel; discussion; Agricultural Education, S. T. Maxey, Mt. Vernon. 7:30 p. m.—Vocal solo, Miss Laura Hyde, violin obligato, J. Marsh; Opportunities on the Farm, Miss Jennie Dunn; Education of Farmers' Sons and Daughters, Miss Blanche Smith; music; Domestic Economy, Mrs. H. M. Dunlap, Savoy.

Friday morning session, 10 a. m.

Song, by audience; The Breeding and Care of Dairy Cows, Hon. Joseph E. Miller; discussion; Visiting Schools, Miss Bertha Kunze; discussion; The Farmers' Son, G. W. Dean, Adams. 1 p. m.—Cornet solo, Edwin Tufts; A Plea for Public Schools, Prof. D. S. Elliott; Success on the Farm, F. H. Rankin, Athens; transaction of business.

Officers elected for the ensuing year: President, Joseph E. Miller, Belleville; secretary, Laura Patterson, Belleville; treasurer, George Daab, Smithton.

Average daily attendance 250. Cost of institute \$134.80.

STEPHENSON COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Freeport, January 26-27, 1899. Officers: President, L. M. Swanzey, Ridott; secretary, H. R. Cotta, Freeport.

Program—Thursday morning session.

Opening chorus, "The Star Spangled Banner"; prayer; president's address, L. M. Swanzey, Ridott; music, Orangeville Quartet, led by Prof. G. I. Caldwell; appointment of committees; Sheep, Luther Angle, Dakota; discussion; Now and Then in Farming, T. J. Matre, Fayette, Wisconsin; Prize Essay, Why Should Farm Life be Preferred to Any Other; music.

Afternoon session.

Opening chorus, "Old Oaken Bucket"; Pruning Grape Vines, illustrated, H. R. Cotta, Freeport; Different Kind of Corn Cultivation, P. G. Holden, Asst. Prof. of Agricultural Physics, Champaign; discussion; music, Orangeville Quartet; Prize Essays, How to Make the Farm Home Pleasant; Farm Conveniences, S. M. Mulnix, Damascus; discussion; solo, "Barnyard Convention," Dr. Poling, Freeport; The Farmer as a Citizen, John Dallyn, Galena Ill.; song.

Evening session.

Music, "The Night is Hushed and Still," Bolton Quartet, Mrs. Hattie Warner, soprano, Ellis Goodsell, tenor, Miss Minnie Goodsell, alto, Lincoln Moore, bass; violin solo, Miss Musser, Orangeville; Sixty Years Behind the Plow, T. J. Van Matre, Fayette, Wisconsin; trio, "Distant Chimes," Mrs. Warner, Mrs. Phoebe Scoville, Miss Minnie Goodsell; recitation, Mrs. C. H. Verbeck, Freeport; whistling solo, Prof. John McCracken, Ridott; Farmers' Wives and Their Families, Dr. M. J. Stees, Freeport; music, Freeport Quartet, J. S. Derstine, Dr. G. S. Krape, Mrs. O. D. Emerick, Miss Effie Leibhart; Our Country, Rev. Homer W. Tope, pastor Memorial English Lutheran church, Freeport; closing song.

Friday morning session.

Opening chorus; prayer; report of awarding committees; Our Taxes and Who Pays Them, Wm. H. Fehr, Dakota; music, Bolton Quartet; Prize Essays on Stock Raising; The Needs of an Agricultural College Building in this State, A. F. Moore, Polo, Ill., President Illinois Farmers' Institute; solo, "Old and Only in the Way," Mrs. Warner; Points on Pork, Fred H. Rankin, Athens, Ills., President Illinois Swine Breeders' Association; discussion; song.

Afternoon session.

Awarding prizes on babies; chorus, "Home Sweet Home"; rhetorical prize contest; report of Committees; election of officers; solo, Mrs. O. D. Emerick; Success on the Farm, Fred H. Rankin, Athens; Social Advancement in the Home, Mrs. Geo. W. Shippy, McConnell; duet, Poultry, Z. T. Turner, Eleroy; discussion; query box; prize speeches on Agriculture, by farmers, not to exceed five minutes each; closing song.

Officers elected for the ensuing year: President, S. M. Mulnix; secretary, J. A. Phillips, Damascus; treasurer, F. B. Walker, Dakota.

Average daily attendance 400. Cost of institute \$112.22.

TAZEWELL COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Minier, January 18-19, 1899.

Officers: President, Ralph Allen, Delavan; secretary, R. C. Crichfield, Minier.

Program.—Wednesday morning, 10:00 o'clock.

Call to order; prayer; song, America, by the audience; address of welcome, R. J. Mitchell, Minier; response, Ralph Allen, County President, Delavan; address, In What Does the Success of Farming Consist, Oliver Wilson, Magnolia, Illinois; adjournment for dinner.

Afternoon, 1:30 o'clock.

Paper, Buttermaking, Mrs. Jas. L. Reed, Delavan; discussion, led by Mrs. Walter Porter, Mackinaw and J. W. Hart, Minier; music, piano duet, Mrs. Minnie Stewart and Miss Crete Adams; topic, Corn Culture, J. T. Foster, Elkhart; discussion, led by F. S. Freitag and O. J. Brennemann; topic, Horses, G. W. Cress, Pekin; discussion, led by O. H. Ogden; vocal solo Crete Adams; adjournment.

Evening, 7:30 o'clock.

Music, Our Governor, Aeolian orchestra; paper, The Farmer's Home—What it Should Be, Miss Lina Brennemann; discussion; music, Latest Hit, Schottish, Aeolian orchestra; declamation, Hon. J. Moses Stubb's Opinion, Emory Hammond; music, Paul Nagel, J. W. Hart, violins, Irma Briggs, piano; address, Effect of the Chicago Elevator Combine on Prices of Grain, S. S. Tanner, Minier; discussion; music, Two Step, American Life, Aeolian Orchestra; adjournment.

Thursday morning, 9:00 o'clock.

Business and election; topic, Cattle Feeding, Luke Bennett, Emden; discussion, led by Hon. W. A. Moore, Morton; Albert Brennemann, Boynton; topic, Drainage, Its Importance in Road Improvement, W. B. Stroud, Jr., Atlanta; discussion, led by H. H. Darnall, Arming-ton; L. Wehmeier, Minier; adjournment for dinner.

Afternoon, 1:30 o'clock.

Topic, Clover Culture, W. R. Perry, Stanford; discussion, led by H. J. Eisenberger and Chris Heiser; music, violin and piano duet, Paul Nagle and Irma Briggs; paper, The Farmer's Wife and Daughter—Their Financial Standing, Mrs. W. H. B. McCormick, Hopedale; discussion, led by Miss Minnie Graff; music, piano duet, Misses Irma Briggs and Ottella Buehrig; illustrated address, Insects Injurious to Corn, Prof. S. A. Forbes, State Entomologist, of the University of Illinois, Urbana; questions and discussion; adjournment.

Officers elected for the ensuing year: President, Ralph Allen, Delavan; secretary R. C. Crichfield, Minier; treasurer, John Betzelberger, Boynton.

Average daily attendance, 225; cost of institute, \$38.70.

UNION COUNTY FARMERS' INSTITUTE.

No meeting was held the past year.

Officers last elected: President, Daniel Karraker, Jonesboro; secretary, George Bar-
ringer, Jonesboro; treasurer, John B. Jackson, Jonesboro.

VERMILION COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Catlin, February 17 and 18, 1899.

Officers: President, G. W. Hobson, Collison; Secretary, R. C. Smith, Danville.

Program — Tuesday morning session, 9 o'clock.

Opening prayer, Rev. Sandifer; address by the President, George W. Hobson, Hope, Ill.; response, G. Wilas Tilton, Catlin, Ill.; address, Educational and Social Life on the Farm, Mrs. Jane D. H. Moore, Vermillion Grove, Ill.; Poultry, L. H. Griffith, County Superintendent of Schools, Danville, Ill.

Afternoon session, 1:30 o'clock.

Music, by the Catlin Orchestra; Sheep Raising, Dr. C. L. Van Doren, Hope, Ill., and Henry Pusey, Fairmount, Ill.; The Horse, J. J. Southworth, Allerton, Ill.; Hogs, A. G. Woodbury, Danville, Ill.; address, Brain and Brawn, Prof. A. E. Turner, President Lincoln University, Lincoln, Ill.

Wednesday, Jan. 18, morning session, 9 o'clock.

Opening with music; address, Woman's Care, Share and Responsibilities of Farm Life, Mrs. J. J. Southworth, Allerton, Ill.; Cattle, U. G. Fowler, Hope, Ill., and James A. Cunningham, Hoopeston, Ill.

Afternoon session, 1:30 o'clock.

Address, Good Roads, W. A. Connelly, Editor Press, Danville, Ill.; Stock Raising by the Farm Tenant, George W. Hobson, Hope, Ill.; Horticulture, Hon. H. M. Dunlap, Savoy, Ill., and Hon. Martin B. Bailey, Danville, Ill.; discussion, Orley Nesbit, Catlin, Ill.

Geo. W. Hobson, Collison.

Evening session, 7:30 o'clock.

Address, Clover Talks, Prof. Joseph Carter, Champaign, Ill. Committee on music—Mrs. Elsie Tilton McGregor, Catlin; Mrs. Alice Loyd Meneley, Catlin, Miss Elvessa Taylor, Catlin.

Officers elected for the ensuing year: President, Geo. W. Hobson, Collison; Secretary, R. C. Smith, Danville; Treasurer, D. M. Fowler, Danville.

Average daily attendance, 300. Cost of institute, \$71.02.

WABASH COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Mt. Carmel, December 1 and 2, 1898.

Officers: President, O. H. Wood, Friendsville; Secretary, Paul Chipman, Mt. Carmel.

Program—Thursday, morning session, 9:30 o'clock.

Opening prayer, Rev. J. H. Walterick; address of President; appointment of committees; reports of officers; election of officers for 1899.

Afternoon session, 1:30.

Music; Bacteria in Agriculture, Prof. T. J. Burrell, Urbana; discussion; Farm Homes, Miss Lotta Sellar, Mt. Carmel; discussion; Sheep Husbandry, Hon. Geo. F. Bell, Decatur; discussion.

Evening session, 7:30.

Music; The Origin of Soils, Hon. Jacob Zimmerman, Mt. Carmel; music; Our Political Shortcomings, B. S. Organ, Mt. Carmel; music; Benediction, Rev. J. H. Stotler.

Friday, morning session, 9:30.

Music; opening prayer, Rev. F. L. West; Best Means of Recruiting Worn-out Orchards, Hal, Shearer, Mt. Carmel; discussion, led by William Marvel; Bees on the Farm, Henry Parmenter, Belmont; discussion, led by George Beauchamp and Jacob Seiler, Sr.; The Clover Crop, Dr. Daniel Berry, Carmi; discussion led by J. B. Stroh.

Afternoon, adjourned session, 1:30.

Music; report of Botanist and Entomologist, Dr. Jacob Schneck, Mt. Carmel; Our Road System, It's Defects, J. H. Kreider, Mt. Carmel; discussion led by Jacob Zimmerman; False Economy, Chas. M. Risley, Mt. Carmel; discussion led by S. S. Seiler; Our Method of Caring for the Poor, Jacob Courter, Allendale; discussion led by O. H. Wood, Friendsville; report of Committee on Resolutions; miscellaneous business; benediction.

Officers elected for the ensuing year: President, O. H. Wood, Friendsville; Secretary, Paul Chipman, Mt. Carmel; Treasurer, E. B. Keneipp, Mt. Carmel.

Average daily attendance, 200. Cost of institute, \$52.04.

WARREN COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Monmouth, February 16-17, 1899.

Officers: President, Eli Dixon, Roseville; secretary, J. Ed. Miller; Monmouth.

Program.—Thursday, February 16, 9:30 a. m.

Prayer, Dr. Samuel VanPelt; music, the N. A. quartette; address of welcome, Mayor F. L. Hall, Monmouth; response, Hon. Eli Dixon, president, Roseville; The Farmer, Geo. W. Dean, Adams; Cattle Breeding and Feeding, D. C. Frantz, Monmouth. R. F. Ranney Little York; Clover as a Feed and Fertilizer, J. W. Coghill, Roseville; Curing Meats, J. W. Reynolds, Little York; question box concerning each succeeding paper; music, the N. A. quartette; adjournment.

1:30 p. m.

Election of officers; music, the N. A. quartette; Raising and Marketing Poultry, Chas. Watson, Roseville; Building and Arrangement of Farm Buildings, S. K. White, Monmouth; Breeding and Care of Swine, Geo. T. Pearce, Monmouth; music, the N. A. quartette; Farming for Profit, Chas. Pinney, Roseville; Profit in Sheep, Ben T. Cable, Berwick; question box concerning each preceding paper.

Friday, February 17, 9:30 a. m.

Prayer, Rev. W. J. Sanborn; music, Wagner quartette; Corn Culture, P. R. Sperry, Eleanor; Fruit Culture, Chas. McClanahan, Eleanor; The Sugar Beet Industry for Illinois, Prof. P. G. Holden, Champaign; Farm Telephone System, J. E. Porter, Little York; question box concerning each preceding subject; music, Wagner quartette; adjournment.

1:30 p. m.

Music, Wagner quartette; Dairy Management, Euclid N. Cobb, Monmouth; Educate the Farmer's Daughter, Miss Lulu Acheson, Little York; music, Wagner quartette; The Value of Good Reading in Home and School, Mrs. M. E. Sykes, Monmouth; Social Life on the Farm, Miss Belle Firoved, Monmouth; question box concerning each preceding topic.

Officers elected for the ensuing year: President, Eli Dixon, Roseville; secretary J. Ed. Miller, Monmouth; treasurer, O. S. Barnum, Monmouth.

Average daily attendance, 400; cost of institute, \$41.40.

WASHINGTON COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Nashville, December 8-9, 1898.

Officers: President, Joseph B. Maxwell, Oakdale; secretary, M. L. Merker, Nashville.

Program.—Wednesday, December 7, 9 a. m.

Invocation, Rev. C. W. Caseley; address, Chas. T. Moore; response, Joe Maxwell; song; paper on Stock Peas and Soga Beans, A. A. Hincley, DuBois; discussion; paper on Corn Culture, Wm. Keugler, Okawville; discussion; question box.

Noon

Song; Insects Injurious to Forage Plants, W. C. Davis; discussion; Economical Control of Chinch Bugs, Roe Winfree, Nashville; discussion; Poultry on the Farm, J. L. Haun; discussion; question box.

Thursday, December 8, 9:00 a. m.

Invocation; music; paper, L. N. Beal; discussion: Clover Growing, E. P. Seibert, Ashley; discussion; Economical Farm Fencing, John Meyer, Addieville; discussion; Horticulture and Small Fruit on the Farms, J. W. Stanton, Richview; discussion; question box.

Noon.

Grain vs. Stock Growing, Prof. French; discussion; Rotation of Crops, Wm. Miller; discussion; Dairying, Jacob May, Nashville; discussion.

Officers elected for the ensuing year: President, J. B. Maxwell, Oakdale; secretary, M. L. Merker, Nashville; treasurer, John Meyer, Addieville

Average daily attendance, 200; cost of institute, \$50.00.

WAYNE COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Jeffersonville, November 25-26, 1898. Officers: President, E. A. Rankin, Fairfield; secretary, J. R. Clark, Jeffersonville.

Program—Friday morning session.

Music by Clover Leaf Quartet; devotional, Rev. Taylor Dickey; The Advantages of the Farmers' Institutes to the People, R. B. Young; The Care, Feeding, and Management of Horses for the First Four Years, W. H. Worley; The Best Breeds of Cattle for the Farmer, Is. Mills, Clay City; Bee Keeping, F. J. Stanley and Mrs. Henry Sims.

Afternoon session.

Music by Quartet; household Economy, Mrs. Nathan Sidwell; Orchard Culture, Prof. J. C. Blair, Champalgn; Spraying, J. A. Wagner, Johnsonville; Mutual Insurance, Henry Kramer, Fairfield.

Evening session

Music; devotional, Prof. Bonnell; recitation; The Dependence of the Business and Professional Men of the County on the Products of the Soil, J. F. Sanford; song, Eureka Quartet; select reading; music; Does the Present Country School System Give as Much Encouragement to Remain on the Farm as It Does to Enter the Professions or Trades, Miss Minnie King; song by quartet; How to Make the Farm Pay, J. P. Stelle, Dahlgren; Poultry, R. I. Jessop, Fairfield; Mrs. J. P. Stelle, Dahlgren; select reading; music; Literature in Our Homes and Its Effect on Our Children, Mrs. F. Morris; address, Dr. Bonnell, of Hayward College.

Saturday morning session.

Devotional, Rev. Chas. Rogers; Butter Making, Mrs. G. C. Clark; Forage Plants, Davis Brothers; address, Rev. T. W. Dickey; Benefits of Tile Drainage in Prairie Soil in Seasons of Drought, Prof. P. G. Holden, of State Experimental Station.

Afternoon session.

Microbes, A. E. Gilpin, Fairfield High School; Leguminous Plants, Robt. C. Morris, Olney; Good Roads, Wm. Blackburn, Samuel Baldwin, and J. J. Rinard.

Officers for the ensuing year: President, E. A. Rankin, Fairfield; secretary, J. R. Clark, Jeffersonville; treasurer, A. R. McDaniel, Jeffersonville.

Average daily attendance 300. Cost of institute \$70.

WHITE COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Carmi, December 6-7, 1898. Officers: President, Ezekiel Hunsinger, Carmi; secretary, Daniel Berry, Carmi.

Program—Tuesday morning session.

Invocation, Rev. J. A. Taylor; address of welcome, Rev. D. Manley; response, Hon. L. N. Beal, Mt. Vernon, Ill.; appointment of committees; reports of officers.

Afternoon session.

Lecture, Insects Injurious to Wheat and Corn, illustrated by charts, Prof. George H. French, Southern Illinois Normal, Carbondale, Ill.; questions; 2:30. Best and Cheapest Methods of Fertilizing and Care of Soils, C. M. Dixon, Parrish, Ill.; discussion.

Wednesday morning session, 9:30.

Invocation, Rev. D. Manley; address, Wheat Growing, the Best Preparation of the Soil, Seed and Time for Sowing, John Land; 10:15, Tile Drainage, F. E. Pomeroy; general discussion; 11:00, Ideal Home, L. Ward.

Afternoon session, 1:30.

Lecture, Diseases of the Horse, Dr. Donald McIntosh, Veterinary Surgeon, University of Illinois, Urbana, Ill.; 2:15, Good Roads, Hon. Jacob Zimmerman, Mt. Carmel, Ill.; discussion; 3:00, Small Fruits and Vegetables on the Farm, Hon. L. N. Beal, Mt. Vernon, Ill.; 3:30, reports of committees; election of officers.

Officers elected for the ensuing year: President, William Whiting, Phillipstown; secretary and treasurer, F. C. Pomeroy, Carmi.

Average daily attendance 250. Cost of institute \$50.

WHITESIDE COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Rock Falls January 17-18, 1899, and an extra meeting at Tampico November 30 1898. Officers: President, Charles A. Wetherbee, Sterling; secretary, W. J. Johnson, Morrison.

Programs—Meeting at Tampico.

Music; prayer, Rev. O. E. Reade; minutes of last meeting; general business; What has Been the Cause, or Causes of so Many Failures of the Potato Crop? discussion opened by Henry Wetzell, of Hume, and George Forward, of Tampico.

Noon.**Afternoon session to open at 1:30.**

Music; Which Pays the Better, the Production of Beef or Dairy Products? A. S. Brewer, Tampico; John Cashner, Hahnman, and W. D. Rosebraugh, Tampico; Does the Present System of Drainage Pay, and if Not, Why Not? Edward Devine, Hahnman; John W. Glassburn, Tampico, and Christopher Miller, Montmorency.

Twenty minute social.

Which is the Better, Deep or Shallow Culture of Corn? A. D. Stanley, Geneseo; Frank B. Thomas and Mark Lyon, Tampico; music.

Evening session; hour of opening, 7 o'clock.

Music; How may the Ungraded Schools of Our County be Improved? Miss Minnie Murphy, Tampico, and Miss Minella Ford, Hahnman; The proper Care of Our Poultry Interests, W. W. Noyes, Prophetstown, and Mrs. Burton Brown and Rev. H. A. Hoover, Tampico; Are Our Husbands Properly Fed? Mrs. Edward Emmons, Mrs. Luther Whelock and Mrs. Emmitt Cummings, Tampico; closing words, by president of Institute, Charles A. Wetherbee, Sterling.

C. A. Wetherbee, Sterling.

Rock Falls, January 17, 1899, hour of opening 10 a. m.

Promptness on the part of all will add very much to the interest of the Institute: music, vocal solo, Miss Mae Petrie; prayer, Rev. H. A. Kern, of Rock Falls; minutes of last meeting. Successful Calf Raising, Luman Ramsay, Rock Falls; the forenoon session will close at 11:45.

Noon.

Afternoon session, 1:30.

Music, vocal duet, Misses Fannie Eberle, Alta Petrie; recitation, Miss Julia Eggleson: Which Pays the Best, Cows, Corn or Steers? A. A. Church, Montmorency; George W. Howe, Morrison; Harmon E. Burr, Union Grove; time allotted each speaker, ten minutes; Corn Culture and its Commercial Products, Hon. E. S. Fursman, El Paso, Illinois; time, one hour; What is the Proper Rotation of Crops? Herman Sturtz, Montmorency; L. S. Kauffman, Hopkins; William Murray, Montmorency; ten minutes each.

Opening hour, 7:30.

Music, Rock Falls band; recitation, Miss Jean Atkins; Size and Valuation of District Considered, What is Fair Wages per Month for the Teacher of the Ungraded School? W. H. Scott, Montmorency; Miss Margaret Hax, Hopkins; ten minutes each; Is the Farmer's Wife an Equal Partner on the Farm? Mrs. Emmitt Cummings, Tampico; fifteen minutes; music, vocal; Farming as a Business, Dwight Herrick, Rochelle, Ill.

W. J. Johnson, Morrison.

nois; fifteen minutes; The Farm Home, Hon. E. S. Fursman, El Paso, Ill.; music, instrumental solo, Miss Ida Stolba; recitation, Ed. Worthington; America, to be sung by the audience, the choir leading.

Wednesday session, opening hour, 9:00 a. m.

Music; prayer, Rev. W. H. Pierce; recitation, Earl Apley; election of officers; business matters; Does it Pay the Farmer to Raise His Own Small Fruit? Grove Wright, Rock Falls; C. R. Powell, Sterling, Illinois; fifteen minutes each; The Comparative Value, as Feed, of Corn Fodder and Hay, Thomas A. Galt, Sterling; George E. Goodenough, Union Grove; twenty minutes each.

Noon.

Afternoon session, 1:30.

Music; recitation, Miss Marlon Leitch; Irish Potato Culture, Dwight Herrick, Rochelle, Illinois; thirty minutes; How the Other Fellow Farms, N. G. VanSant, Sterling, thirty minutes; closing thoughts by the president of the Institute; closing music, Columbia, the Gem of the Ocean.

Officers elected for the ensuing year: President, A. D. Stanley, Coleta; secretary, W. J. Johnson, Morrison; treasurer, Charles W. Mitchell, Round Grove.

Average daily attendance, 200; cost of two meetings, \$50.00.

WILL COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Joliet January 19, 20, 21, 1899. Officers: President, A. Allen Francis, New Lenox; secretary, H. H. Alexander, Lockport.

Program—Thursday, January 9th, morning session, 9:30 o'clock.

Prayer; music, Amphion lady quartet; address of welcome, G. L. Vance, Joliet; response, Robert Entou, Joliet; Hog Cholera, Frank Baumgartner, Peotone; recitation, Miss Georgia Smith, Lockport; Cooperation in Farming, George B. Boardman, East Wheatland; Will the United States be Benefited by the Acquisition of Foreign Territory? If so to What Extent? William M. Clow, Tokio.

Afternoon session, 1:00 o'clock.

Music, Amphion lady quartet; Cattle and Hog Feeding, Hon. David Forsythe, Elwood; Social and Intellectual Culture, Mrs. A. M. Storm, Marley; Is the Farmer Fairly Represented in the Legislature? J. H. Alexander, Lockport; Advice in Emergency Cases of Accident, Common Principles of Hygiene and Self Help Until Professional Assistance can be Obtained, J. R. Casey, M. D., Joliet.

Friday, January 20th, morning session, 9:30 o'clock.

Prayer; music, Marley male quartet; What Benefit has the Wheatland Plowing Match Been to the State of Illinois? James Patterson, Hoddam; State Fair Management, Hon. W. D. Stryker, Plainfield; Dairying, E. L. Wilson, Manhattan; Does the State University of Illinois Give the Proper Attention to Agriculture, as Designed by its Charter? Merton G. Van Horn, Plainfield; recitation, Miss Daisy Higgins, DuPage P. O.; Sheep Husbandry, A. Ruland, Lockport.

Afternoon session, 1:00 o'clock.

Song, Marley quartet; How to Retain Female Help on the Farm, Mrs. A. Robins, Plainfield; recitation, When Jack Comes Late, Miss Jessie B. Mottinger, Joliet; Women of the Nineteenth Century, Mrs. Mary E. Francis, New Lenox; New Features of Institute Work, President A. Allen Francis; Farm Telephones, L. E. Ingalls, Joliet.

Saturday, January 21st, morning session, 9:30 o'clock.

Prayer; song, Amphion lady quartet; Do the Public Schools Produce Results Adequate to the Amount of Money Expended? Charles W. Minard, principal Tennyson School, Chicago; Agricultural Education, E. Davenport, Champaign; recitation, Miss Bessie Bowen, Marley; Milk Shipping Dairy, J. E. Francis, New Lenox; The Mocking Bird, William Juvenal, Hoddam; A Woman of Resources, Mrs. John Crawford, Manhattan.

Afternoon session, 1:00 o'clock.

Music, Amphion lady quartet; awards of premiums announced; election of officers; Moral Culture of Children, Mrs. George Firestein, DuPage P. O.; reading, Miss Lilly Crawford, Wilton Center; Township High Schools, M. J. Cunningham, Manhattan.

Officers elected for the ensuing year: President, A. Allen Francis, New Lenox; secretary and treasurer, Newton G. Van Horn, Plainfield.

Average daily attendance, 1,000; cost of institute, \$219.00.

WILLIAMSON COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Marion, November 16 and 17, 1898.

Officers: President, A. Luke Ralls, Marion; Secretary, T. J. Youngblood, Marion.

Program—Wednesday morning.

Song, America; invocation, Elder Harris, Marion; welcome address, Judge J. M. Washburn, Marion; Domestic Economy; music; Clover, Daniel Berry, Carmi.

Afternoon.

Song, Marion High School Choir; Pernicious Weeds, Judge Bishop, Marion; recitation, Miss Mettie Davis, Marion; The Farmer's Home, Mrs. Ann E. Kennedy, Fredonia; song; evening address, Insects Injurious to Crops, Prof. S. A. Forbes, Champaign.

Thursday morning.

Invocation, Rev. Nelson, Marion; Marketing Crops, A. Luke Ralls, Marion; recitation, Miss Grace Davis, Marion; Berry Culture, J. J. Chamness, Chamness; discussion by assembly; music: Our Poultry Interests, J. A. Lauder, Carterville; song; Butter Making, Mrs. H. M. Richart, Fredonia; How to Keep the Boy on the Farm, Dr. J. J. Fly, Pulley's Mill; Intellectual and Social Culture for Farmers' Families, Mrs. Antis Murrah, Marion; Bread and Cake Making; a paper, The Country School, Its Needs and Possibilities, Noah Hunter, Blairsville; instrumental solo; address, The Farmer's Boy, Wm. M. Reid, Marion; Objects and Benefits of the County Farmers' Institute, W. W. Peebles, Attila.

Officers elected for the ensuing year: President, George Neeley, Absher; Secretary, Mrs. Minnie L. Copeland, Marion; Treasurer, A. M. Townsend, Marion.

Average daily attendance not given. Cost of institute, \$41.46.

WINNEBAGO COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Rockford, January 25-26, 1899. Officers: President, A. J. Lovejoy, Roscoe; secretary, A. E. Cutler, Rockford.

Program—Wednesday morning.

Prayer, Rev. T. G. Soares, Ph. D.; opening address by the president, A. J. Lovejoy; By What Methods Can Farmers Realize the Best Results from Their Corn Crop; discussion, John Wilcox, Burrill; Sheep on the Farm, discussion, J. W. Hitchcock, Pecatonica.

Wednesday afternoon.

Appointment of committees on nominations and resolutions; The Advantage and Profit of Using Milk Separators at the Farm, Foster Graham, Harrison; select reading, The Born Inventor, Harry Stillwell Edwards, Miss Winifred Gray; The Advantage to the Farmer in Sending Milk to a Creamery, discussion, M. A. Brown, of the Rockford Milk and Butter Company; Points on Pork Growing, discussion, Fred H. Rankin, Athens, Ill., (Mr. Rankin owns and operates a 1600-acre farm); Interesting Points of the Farmers' National Congress at Fort Worth, Texas, James H. King.

Thursday morning.

Farmers' Institutes, What of Their Value, discussion, A. S. Collins, president of Boone County Institute; select reading, Griggsby's Station, James Whitcomb Riley, Miss Winifred Gray; Advantages of Farm Life, Mrs. T. B. Moore, Roscoe; How to Improve Our District Schools, discussion, Prof. O. J. Kern, County Superintendent of Schools; The Needs of the Agricultural Department of Our State University, A. F. Moore, Polo, President of the State Farmers' Institute, Prof. P. G. Holden, of the State University, also spoke on the above topic; Result of the Experiments in Dipping Southern Cattle to Prevent Texas Fever, B. B. Page, Assistant State Veterinarian.

Thursday afternoon.

Reports of committees; election of officers; select reading, The Village Gossip, Kate Douglas Wiggin, Miss Winifred Gray; Corn Growing, Result of the Different Methods Employed at the State Experimental Station, Champaign, Ill., Prof. P. G. Holden; Questions and discussion; Fruits on the Farm, Geo. J. Kellogg; free parliament.

Officers elected for the ensuing year: President, George Collins, Rockford; secretary, W. L. Frisbie, Rockford; treasurer, D. W. Evans, Rockford.

Average daily attendance 450. Cost of institute \$76.12.

WOODFORD COUNTY FARMERS' INSTITUTE.

The annual meeting was held at Minonk, January 19-20, 1899.

Officers: President, W. G. Lindley, Minonk; secretary, W. H. Smith, Eureka.

Program.—Thursday, January 19, morning session.

Music; prayer, Rev. Vivian; address of welcome, Mayor Kipp; response, John L. McGuire, Metamora.

Afternoon session.

Music, Agricultural Education, Eugene Davenport, Champaign; discussion; reading, Mrs. W. A. Kleinhen; Feeding for Profit, J. A. Ranney, Metamora; discussion; Clover, F. H. Rankin, Athens, Illinois; 30 minutes discussion on deep or shallow cultivation, led by P. H. Davison, Yankeetown and John L. McGuire, Metamora.

Evening session.

Music; solo, O. M. Davison, Yankeetown; address, The Ideal Farmer, David Ward Wood, Chicago.

Friday, January 20, morning session.

Music; prayer, Rev. Moon; E. S. Fursman, corn judge, will explain the good points in corn; Insects Injurious to Corn, Dr. Stephen A. Forbes, State Entomologist; discussion; reading, Mrs. Minnie Lee Moon; Poultry Raising, G. A. Willmarth, Seneca.

Afternoon session.

Music; Help to Assist the Farmer's Wife in her Work, Miss Mary Kaufman, Eureka, Miss Bertha Davison, Yankeetown; Farmer's Garden, Miss Amanda Jennings, Eureka, Mrs. R. Dague, Minonk; Keeping the Boys and Girls on the Farm, Mrs. E. S. Fursman, El Paso, Mrs. J. C. Tomb, Eureka; recitation, Miss Lita Stoddard, Minonk; Farm Home, Mrs. L. G. Chapman, Illinois; reading prize essay by country boy or girl under 17 years of age. Subject: What We Enjoy on the Farm. Judges—Rev. R. L. Vivian, Rev. W. R. Moon and Rev. W. S. Morrow.

Officers elected for the ensuing year: President, Isaac Boys, Metamora; secretary, W. H. Smith, Eureka; treasurer, George Shuman, El Paso.

Average daily attendance, 400; cost of institute, \$97.10.

SUMMARY.

Total number of Counties holding Farmers' Institute in the year ending March 1, 1899.....	88
Total number in daily attendance at Farmers' Institute sessions.....	29,709
Total cost.....	\$6,838.79
Average daily attendance at Institute sessions.....	338
Average cost of County Farmers' Institutes.....	\$77.60

PAPERS READ AT COUNTY FARMERS' INSTITUTES.

The papers read at County Farmers' Institutes embodied in this report, were selected by the Executive Committee of the Illinois Farmers' Institute from the lists recommended by the Directors from the several Congressional Districts.

These lists contained carefully prepared, practical, instructive papers, all of them worthy of publication and careful reading. But more of them were received than could possibly be published within the limits of this volume.

There were also a large number of equally valuable, instructive, and entertaining papers read at the several County Farmers' Institutes which the Directors were unable to secure.

To select from so many, when all were so excellent, was no easy task. The following were accepted by the committee with a view of covering as wide a range of topics as possible. Topics which would be of the most general interest to the farmer and his family and would apply more fully to the State at large:

HORSE DEPARTMENT.

THE HORSE.

By Mr. Burr, Monticello, at Kendall Co. Institute.

I regret that the discussion of this subject has not fallen into abler hands than mine, as in the breeding of horses there is a greater field for both pleasure and profit for the young man than any other animal on the farm.

Pleasure, certainly in the possession and developing of a handsome, well-bred colt, and certain profit in the sale of the properly trained and developed horse. There must be an innate love for the animal to start with, else it is idle to begin. Then one must have a type fixed in his mind of whatever breed he intends to raise, whether draft, coach, saddle, or trotter, and the higher the type the greater his effort to reach it and consequently the greater his success, for in this as in every other avenue of life the higher the ideal the greater the effort put forth and the greater the resulting reward.

The breeding ranks are filled with wrecks caused largely by the unfortunate ones engaging in the business without any fixed purpose or knowledge of how to produce the type of animal desired. I know of no business that requires more thought or greater care. If the taste is for draft, then be contented with and accept nothing less than the best and give them all the care possible. So also with the other breeds.

It is more than folly to attempt in this day to raise a general purpose horse. [That happy term is applied to every misfit.] You will find that you will have all of that sort on your hands that you can possibly dispose of in trying to raise high class horses. A love of the spirited, graceful, high-bred animal is an evidence of the higher civilization of a people and of a necessity with the fine horse and the higher civilization comes good roads, and when could there be a more fitting time and place for the starting of the twin movements than here in Piatt county and now, not next year, or the year after, but now. If I shall have caused even one among you to think upon this subject, I shall feel amply repaid.

CATTLE DEPARTMENT.

CONTAGIOUS DISEASES OF ANIMALS, AND SANITARY REGULATIONS WITH REFERENCE THERETO.

By C. P. Johnson, Secretary State Board of Live Stock Commissioners of Illinois.

In view of the fact that Illinois is one of the largest live stock producing states in the Union, and that there is scarcely a progressive farmer who is not a breeder and owner of live stock, the contagious diseases of animals is certainly a topic of great interest to all present; and in view of the further fact that Illinois contains the largest live stock market in the world, to-wit: The Union Stock Yards of Chicago, and the third largest in the United States, the National Stock Yards at East St. Louis, and by reason of its geographical location is the gateway through which nearly all shipments of live stock east or west are made, there are no laws upon our statute books of greater interest to that vast number of primary wealth producers, the farmers and live stock growers.

In preparing this paper, I find it necessary to interweave the subjects, and shall first deal with that contagious disease of animals, the existence of which made legislation and State supervision both desirable and necessary.

A contagious or infectious disease is one that is capable of being transmitted in any manner from one individual to another by contact or by the healthy individual in some way receiving the germ of the disease into the system. The words "contagious" and "infectious," are so nearly synonymous that most lexicographers have found difficulty in defining the differences in the meaning of the two terms. It has only been within comparatively recent years that the investigations of eminent scientists into the deep mysteries of the transmission of diseases have discovered the explanation of such transmission, and it is now conceded by nearly all investigators that every contagious or infectious disease is due to a microscopic organism, commonly called a germ; that contagious or infectious diseases are communicated from one individual to another by the transplantation in some manner of the germ; and that no contagious disease can be found in any individual without the implantation of the germ peculiar to that disease; in other words, in the case of such diseases as contagious pleuro-pneumonia in cattle, glanders in horses, small pox or yellow fever in men—you can no more get a manifestation of any of these diseases in an individual without the implantation of the germ of the disease in question, than you can raise a field of wheat without planting the seed or grain of wheat. Even in the case of diseases that are not exotic but are indigenous and peculiar to the locality, the disease can only be produced by taking the germ of the disease into the system, from whatever source it may be derived. It does not follow that all animals exposed to a disease germ contract a disease; if they did, the kingdom of lower animals, as well as the human race, would soon become extinct. Only those animals or individuals contract a contagious disease that, by reason of the condition of the system at the time of exposure, are susceptible. Many individuals are sufficiently rugged to combat the natural efforts of the germ to reproduce itself, and, because of this fact, many horses escape the contraction of glanders and many men and women escape contracting small pox, yellow fever and other contagious diseases to which they are exposed.

The most dreaded disease to the live stock interests of this country which the sanitary authorities have had to cope with in the past, is contagious pleuro-pneumonia in cattle, and as this disease gave rise to the first sanitary legislation in the interest of animal industry, it may be of interest to give a brief historical sketch of this disease. It may be classed, not only as a dangerously contagious disease, but also as highly contagious; that is to say, it is easily communicated, and almost certainly communicated to a large percentage of animals that are exposed to the infection. It is more difficult to successfully deal with than the well known Russian cattle plague or rinderpest of Europe because of its insidious and subtle nature. It exists only in cattle, affecting the lungs and pleura, and is not transmissible to other domestic animals or to man. The period of incubation, or the time after exposure when the animal develops the first symptoms of the disease, is in the neighborhood of thirty days. This is one of the features which makes the disease most difficult to deal with, as many exposed animals will escape detection and, changing ownership during the period of incubation, will become infecting centers for new outbreaks. Then again, many animals contract a slight manifestation of the disease and apparently recover; but it is very rare that a case has been known to recover to that extent that it is not liable, at some subsequent period, to communicate the infection to other individuals. This is a condition not peculiar to many contagious diseases, and is due to the fact that, in a slight attack, a small portion of the lungs may become affected and the animal being rugged, nature may, and does, very frequently, put a stop to the spread of the disease in the lungs by forming around the diseased portion a thick fibrous membrane. This membrane and its contents is called a cyst. The substance of the lung within the cyst walls, after months of time usually liquefies and then, at any time, is liable to set up new irritation, in which event the wall breaks down; the virus, through the circulation, enters the healthy lung tissue, creating what is known as a "sub-acute" case of the disease and the supposed recovered animal has become as dangerous to other members of the herd as it ever was in the acute form. In this country our experience is that from thirty to sixty per cent of the animals actually exposed to contagious pleuro-pneumonia will contract the disease and manifest illness in a greater or less degree, and that a majority of such animals die, if the disease is allowed to run its course.

The first historical appearance of the disease which now is known to have been contagious pleuro-pneumonia was in Switzerland in 1713. During the next hundred and forty years it spread to almost every country in Europe, reaching England about 1842, and it was imported into the United States in a shipment of four cattle from Holland in May, 1869, by a Mr. Chenery of Belmont, near Boston. but had previously found a foothold, it is claimed, in New Jersey, and Brooklyn, N. Y., as early as 1840. The disease was allowed to spread in Massachusetts during a year following its introduction, when desultory and intermittent efforts were made, extending over a period of five years, which eradicated the disease from the State. It required the destruction of 1,164 head of diseased and exposed animals before Massachusetts was declared to be free. No efforts were made in New Jersey or New York for its eradication and subsequently to its introduction it spread to the states of Connecticut, New York, New Jersey, Pennsylvania and Maryland, and to the District of Columbia in the east; and in 1883 was conveyed in a shipment of grade Jerseys from Baltimore to Troy, Ohio. From Troy, a shipment of Jersey cattle was made to a Mr. Epler, Virginia, Illinois, arriving at Virginia January 4th, 1884, where, on February 21st, 1884, a sale was held and the cattle purchased at that sale were taken to Geneva, Peoria, Danvers, Springfield, Jacksonville and Rushville, Illinois. One of the peculiar features of the outbreak of this disease in Illinois is the fact that while the animals shipped from Troy, Ohio, remained in the possession of Mr. Epler, of Virginia, no cases of illness were noticed, and the subsequent spread of the disease must have been due to chronic, or so-called recovered cases. Animals purchased at the Epler sale died at Peoria, Geneva, Danvers, Springfield and Jacksonville. From Geneva the disease was conveyed, through animals sold, to St. Charles, Elmhurst and Sterling, Illinois, and to Cynthiana, Kentucky. From Peoria it was carried in a Jersey bull to Fulton, Missouri, where several

months afterwards an outbreak occurred which was in every way remarkable for the percentage of exposed animals that contracted the disease. The disease made almost a clean sweep in the herd at Fulton. There was no spread of the disease from the individual animals that died at Springfield, Danvers and Jacksonville, owing to the fact, undoubtedly, that the animals were kept isolated.

Prior to 1884, all questions affecting the interests of agriculturists were dealt with on the part of the United States Government by an officer designated the Commissioner of Agriculture, and there had been no specific legislation looking to the restriction of contagious diseases among domestic animals. In 1882 the Treasury Cattle Commission, composed of Prof. James Law, of Cornell University, Ithaca, N. Y.; Dr. E. F. Thayer, of Massachusetts, and Hon. J. H. Sanders, of Chicago, former editor and proprietor of the *Breeders' Gazette*, appointed by the Secretary of the Treasury some year or two previous, for the purpose of thoroughly investigating the nature and history of contagious pleuro-pneumonia, and its prevalence in the United States, made an exhaustive and able report to Congress, giving the results of its investigations. Following this report, in May, 1884, Congress passed an act creating the Bureau of Animal Industry and made appropriations for the purpose of conducting the investigations, experiments, etc., provided for in the law. The then Commissioner of Agriculture at once appointed Dr. D. E. Salmon to be Chief of the Bureau of Animal Industry, and that eminent and able pathologist has remained at the head of that bureau to the present time. Subsequently, as you are no doubt aware, Congress created the Department of Agriculture, whose head, the Secretary of Agriculture, is a member of the President's Cabinet, and the Bureau of Animal Industry became a bureau in that department.

The question is sometimes asked, "What necessity is there for State sanitary boards and State laws, since we have the Bureau of Animal Industry created by the National Government?" It is this: The powers of the government to deal with contagious diseases within any state are very limited. The government can only exercise its police powers in cases of interstate traffic; it can throw a quarantine line around the borders of any state and prohibit diseased or exposed animals from passing into an adjoining, and all other states, but it can not prevent the movement of animals from point to point within a commonwealth. Its agents can only enter the premises of a private individual where disease is supposed to exist by permission of the owner, and have no power whatever to enforce internal quarantine measures, to appraise or compel the slaughter of diseased animals, or, in other words, to enforce police regulations within a state. For this reason it became a matter of paramount importance that each state government should enact laws, create boards or other offices, and confer upon these boards or officers police powers, in order to effectively deal with outbreaks of contagious diseases among animals.

It was most fortunate for the cattle interests of the State of Illinois that, anticipating the possibility of the introduction of contagious pleuro-pneumonia from the eastern states, some of our citizens most actively interested in the great cattle industry, induced the legislature in 1881 to pass an act making an appropriation for the purpose of preventing the introduction and suppressing the existence (in case of its introduction) of contagious pleuro-pneumonia among cattle. In 1883 this act was amended so as to make its provisions apply to glanders among horses. When contagious pleuro-pneumonia was first reported to exist in Illinois, the Bureau of Animal Industry promptly sent inspectors, and in connection with the then State Veterinarian, a thorough and exhaustive investigation was made, which confirmed beyond a doubt the reported existence of the dread scourge. Quarantine measures were at once enforced and all animals known positively to be diseased, and most of the exposed animals were slaughtered, the State allowing compensation to the owners thereof in such amounts as were fixed by boards of appraisers appointed under the provisions of the law. As the disease in this State was at this time almost exclusively among registered Jersey stock, and this breed of cattle was at flood tide in the appreciation of its admirers, exorbitant values were allowed by the appraisers. This apparent extravagance

induced the Legislature in 1885, when it passed an act revising the act of 1881, as amended by the act of 1883, creating the State Board of Live Stock Commissioners, to prohibit the payment of damages for diseased animals slaughtered under its provisions. This prohibition was a serious defect in our law, since owners of diseased animals, knowing if they reported the existence of disease that they would secure no compensation from the State, were prone to conceal the fact, and to surreptitiously dispose of diseased animals, thus tending to defeat the very objects of the law which were to discover and extirpate dangerously contagious diseases. This defect, however, was cured by the Legislature upon the recommendation of the board, in a revision of the law in 1887. The revision and amendatory acts passed in 1887 were the last changes made in the law of this State. It provides for a State Board of Live Stock Commissioners, composed of three members, to be appointed by the Governor, the secretary not being a member of the board, a State veterinarian, who is under the direction of the board, to be appointed by the Governor, and such assistant State veterinarians as the State veterinarian shall appoint by and with the advice and consent of the board. It makes it the duty of the board to cause to be investigated by the State veterinarian, or any assistant veterinarian, all reported outbreaks of contagious diseases among domestic animals and in case such diseases are found to exist, it makes it the duty of the veterinarian, or a member of the board, to place all the diseased and exposed animals in quarantine. While the language of the title of the act is broad enough to cover the contagious diseases of all domestic animals, the Attorney General has held that, in view of the fact that the previous acts, of which the present law is a revision, apply only to diseases of horses and cattle, the jurisdiction of the board should be confined to the diseases of the bovine and equine species. The law empowers the board to agree with owners as to the amount of damages to be paid in case animals are slaughtered, or, in the event of failure to agree, to appoint boards of appraisers to fix the value, which is with the limitation that in the case of cattle it shall be based on the fair market value for use for beef or for dairy purposes, and shall not exceed \$75 per head; and in the case of horses, mules and asses, that it shall be based on the fair cash market value thereof, not to exceed \$100 per head. Having made the agreement as to value, or having had the animals appraised, the law empowers the board to compel the slaughter of the diseased, and such exposed animals as in its judgment is necessary to extirpate or prevent the spread of the disease to other animals. It is also made the duty of the board to report to the Governor the existence of dangerously contagious diseases in other states or countries, or the existence of conditions therein which render domestic animals coming therefrom into this State dangerous to the health of the domestic animals thereof, and empowers the Governor, upon such report, to issue his proclamation scheduling such territory, states or countries and prohibiting the importation therefrom into the State of Illinois of the kind of animals that are dangerous, except in accordance with the rules adopted by the board. The law also provides that the board may schedule counties and parts thereof in the State of Illinois where a dangerously contagious disease has become epidemic or widely spread, and the Governor may by proclamation, establish a quarantine preventing animals being removed from said district, or healthy animals being brought therein except under rules adopted by the board. Such are the general and important provisions of the sanitary laws of our State with regard to contagious diseases of animals, as they exist at this time.

When the first Board of Live Stock Commissioners was appointed under the new law in 1885, it was supposed that the outbreak of contagious pleuropneumonia heretofore referred to had been stamped out, but in September, 1886, the disease was discovered to exist in Cook county. The announcement sent a thrill of apprehension through the board and through the nerves of every stock man in Illinois who was familiar with the character of this insidious disease. A thorough investigation ascertained that the main centers of infection were a number of distillery barns in the city of Chicago, where numerous cows belonging to families in the vicinity were daily kept and fed. While the origin of this outbreak in Cook county could never be definitely traced, it was undoubtedly some chronic or partially recovered case that had

escaped detection in 1884. The only reason why the disease did not spread over a greater area was that the cows involved, on becoming dry, together with all other cattle fed therein, usually went direct to the abattoir for slaughter, and few, if any, ever found their way again into the country.

Realizing that we had an herculean task to perform if the cattle interests of the State, and in fact of the entire west, were to be protected, all the machinery of the law was put into effect to discover the extent of the infection and to prevent further dissemination, by quarantining all diseased and exposed animals that could be discovered. The Bureau of Animal Industry was asked to give all the assistance possible under congressional law and appropriations. The most eminently qualified veterinarians in the United States were employed by the State board and by the bureau, and very soon the campaign of extermination commenced. Professor James Law, of Cornell, one of the most able pathologists in this country, and possessing eminent executive abilities, was placed by the bureau at the head of the government force. Our Legislature as soon as possible after convening in January, 1887, made ample appropriations and amended the law so as to confer necessary powers, theretofore lacking, to enable the board to successfully cope with the outbreak, and within the remarkably brief space of fifteen months the largest outbreak of pleuro-pneumonia, taken in connection with the area covered that the history of the world discloses, was effectually stamped out. There were slaughtered in the process of extirpation over 12,000 head of diseased and exposed cattle. The disease did not spread beyond the area that was infected at the time of the discovery of the outbreak, and since the 29th day of December, 1887, no case of contagious pleuro-pneumonia has been known to exist in the State of Illinois. Sanitary authorities throughout the world concede that the stamping out of this mammoth outbreak in the brief time stated was the greatest feat of the kind ever accomplished. It was possible to accomplish it only by the heroic measures adopted—the destruction of all diseased and immediately or remotely exposed animals, and the thorough disinfection of all infected stables and grounds. As fast as the legislatures of other states where the infection existed could be induced to enact laws conferring necessary police powers upon state sanitary officers, so that they could effectively coöperate with the Bureau of Animal Industry, the same method of extirpation was adopted, and Pennsylvania became free from the disease in September, 1888; Maryland in September, 1889; New Jersey in March, 1892, and New York, the last known spot of infection in this country, in April, 1892, since which date no case of the disease has been known to exist this side of the Atlantic. The disease still prevails in Europe, because of the fact that the governments of the countries involved have failed to adopt the stringent methods adopted in this country. While it is possible that this disease might be again imported into this country, it is not probable, so long as the present stringent quarantine regulations against foreign countries where the disease exists are maintained by the United States Department of agriculture.

SOUTHERN CATTLE FEVER.

The most peculiar disease that the board has had to deal with, and must deal with every year in order to protect the cattle of the State, is what has been known as Texas, or Splenic fever. This disease when it first made its appearance among northern cattle was supposed to be imported exclusively from Texas and the Indian Territory, or, at least, that it was only conveyed to northern native cattle by Texas or Cherokee cattle, hence the title of the act passed by the Legislature in 1869, being the first legislation upon this subject in this State, prompted by an outbreak of the disease on an extensive scale throughout central Illinois the previous year from exposure to shipments of Texas and Cherokee cattle. The disease is now, however, more properly designated "southern cattle fever," since nearly all of the southern states from the Pacific to the Atlantic have become the habitat of the germ of the disease. No disease has been a greater puzzle to scientific men because of the peculiar circumstances surrounding its communication to northern cattle. It is a well known fact that after the southern animal has been north of

the southern fever line four to six weeks, it is incapable, in a natural way of communicating the disease in subsequent exposures, and it is also a well demonstrated fact that northern native cattle that have been affected with the disease have never been known to recommunicate it to natives.

It became necessary, soon after the creation of the board, to promulgate regulations for the safe handling, during the spring, summer and fall months, of southern cattle shipped to northern markets, so that no native cattle should become exposed thereto, or exposed to the disease germs they carried. About this time the Bureau of Animal Industry took up the question and by coöperation secured the setting apart in all northern stock yards of a certain portion, or pens, to be exclusively used for southern cattle, and the providing of separate chutes and scales. The regulations promulgated since that time provide that the way bills accompanying all shipments of cattle from the territory designated and scheduled in the proclamation of the Governor, and in the regulations promulgated by the Secretary of Agriculture, shall be stamped "southern cattle," so that upon arriving at any stock yards, the cattle may be properly yarded. No southern cattle are permitted, under the regulations, to be unloaded in other than the pens exclusively set apart for them, or to be shipped to other portions of the State during the period of inhibition, except on a permit from the board when parties are located along the railroad track. One very peculiar feature of the disease is that southern cattle, while possessing the power to convey the disease, are themselves to all appearances, healthy. A post-mortem examination of a Texas steer is necessary to discover any symptoms of the disease, and then the only discoverable manifestation, without the use of the microscope is, possibly a slight enlargement of the spleen and liver. Scientific investigations pursued for many years, finally, in 1889, led to the discovery of the germ of southern cattle fever in the blood of the southern animal. Prior to 1889 it was the opinion of scientific investigators that the germ passed from the animal in the excrement, was deposited on the ground, and that the native cattle contracted the disease by coming in contact with the trail or the ground passed over by the Texas animal. As early as 1868, during the outbreak referred to in Illinois, cattlemen who were members of the commission appointed to investigate that outbreak, advanced the opinion that the Texas cattle tick was the carrier of the disease to northern natives, but this proposition was laughed to scorn by scientists. About the year 1890, while Hon. Jeremiah M. Rusk of Wisconsin, was Secretary of Agriculture, the so-called "tick theory" of transmission was brought to his attention and he directed the chief of the Bureau of Animal Industry to make thorough investigations upon that line. Those investigations have been carried on to the present time, and the scientists of the bureau very soon became convinced that they at last had found the solution of the transmission of Texas fever. Several State experiment stations took up the work of experimentation and all of the results of such experiments tend to show that the tick is the carrier of the disease. Ticks have been taken from southern animals, carried north and placed in pastures where no southern cattle had ever been, and after the ticks had laid their eggs and the young ticks were hatched, native cattle that had never been exposed to southern cattle or a southern cattle trail, were placed in the pasture and subsequently developed typical splenic fever. These experiments demonstrate, beyond all doubt, that the tick conveys the fever. The theory deduced as the result of these experiments, is that the tick on the southern animals becomes filled with the blood containing the germ or parasite of the disease. Upon maturing it drops from the animal to the ground, lays its eggs and dies. The young ticks, upon hatching, are impregnated with the virus through the egg, and upon getting on the native animal, transmit the germ into its circulation.

It then remains to be demonstrated, if possible, that the tick is the only method of transmission. Numerous efforts were made to convey the disease by the excrement of the animals after all ticks were carefully removed. In the experiment, animals absolutely free of ticks were exposed to susceptible natives, and in each experiment so made the department reports its inability to communicate the disease in the absence of the Texas fever tick. The most interesting document that I have seen published is Bulletin No. 37 of the

Missouri Experiment Station, the greatest part of which will be reproduced in the forthcoming report of our board. The Bureau of Animal Industry is now experimenting to discover a dip agent that can be used to free southern cattle from the Texas fever tick through the process of dipping. The Secretary of Agriculture reports fair prospects of early success in this direction. So soon as the department shall report the discovery of an agent that will effectively destroy the ticks by the dipping process, the boards of Illinois, Kansas, Missouri and Oklahoma will conduct exposure experiments of northern susceptible natives to dipped southern cattle upon such a scale that, should positive results ensue, will forever settle this vexed question. The success of such experiments means much to the farming interests of Illinois, especially during such years as the past when the demand for stock cattle is so great that the northern supply is insufficient to meet the demand.

ACTINOMYCOSIS.

Actinomycosis, or what is known as "lumpy-jaw" among cattle, is a disease over which there is probably more contention and difference of opinion as to whether it is contagious, than any other animal disease. It is certainly not a highly contagious disease but it is a scientifically demonstrated fact that it is capable of being transmitted by the transplantation of the germ called "actinomyces" (ray fungus) from a diseased animal to a healthy one and to man. The reason it is usually not believed by farmers to be contagious is that the germ is not easily transplanted in a natural way, and the spread of the disease in a herd is not attributed to contagion. Numerous experiments have succeeded by artificial transplantation in producing the disease in animals experimented with, and there are far more cases of the disease in the human race where it can only be contracted by contact with affected individuals, or by eating animal food products than the records show, from the fact that the disease, when affecting the internal organs, as is most frequently the case in man, is diagnosed by physicians under another name. In the early stages of the disease in animals, where the knife can reach the seat of trouble, or caustic remedies are applied, it may be easily cured; but when the fungus has affected the bones, or through the circulation has been carried to the liver or lungs, it is impossible of cure, and the meat from such animals is dangerous when used for human food. For these reasons, all cattle affected with this disease arriving at our stock markets, are arrested and held for post mortem examination, and in all cases where the disease has reached the internal organs, or has found an inlet from the diseased portion to the interior of the animal anatomy, the carcasses are condemned.

GLANDERS.

One of the diseases continually dealt with by the board of live stock commissioners is glanders in horses. This is a disease that existed among horses as early as the time of Constantine, the Great. It has been common in every European country, except, perhaps, the extreme northern portion of the continent. It has been introduced into India, Australia, Mexico and other southern and northern climes. It may occur in four distinct forms—acute and chronic glanders, and acute and chronic farcy. It is contagious and deadly in its effects, no cure being known for the disease. The germ is not, however, like the germ of pleuro-pneumonia, conveyed through the atmosphere, but it is transmitted only by the healthy animal coming in actual contact with the virus in the discharge from a diseased animal. It is peculiar to horses, mules and asses. It frequently affects the lungs and other internal organs, and such cases are almost impossible to diagnose, except by the use of a recently invented lymph called "mallein."

The disease has been quite prevalent in this, as well as most all other states of the Union; in fact since the creation of the board in 1885, glanders has existed in all the counties of the State but thirteen. The counties that have been exempt are DeKalb, Greene, Hardin, Jersey, Lee, Mason, Monroe, Perry, Putnam, Randolph, Richland, Stark, and Wabash.

Upon the discovery of a case of glanders the diseased animal or animals, and all exposures are promptly placed in quarantine. The diseased animals, after agreement is made with the owner as to the amount of compensation he shall receive, the board usually allowing about one-third of the value the animal would have if free from glanders, are slaughtered, and the premises caused to be thoroughly disinfected. The exposed animals are then always held in quarantine for at least ninety days, after which, if no suspicious symptoms have appeared they are released. There has been a gradual general decrease each year since 1886 in the number of counties where glanders has existed, ranging from twenty-four counties in 1888 to fifteen counties in 1897. The board has, during the past two years, experimented to some extent with the diagnostic agent, "mallein," and most of the results have been positive. When experimentation has reached the point of demonstrating to just what extent mallein can be depended on as a diagnostic agent in disclosing the existence of glanders in the incipient form in the internal organs of the animals, it will undoubtedly be used in all cases of exposed animals, thus enabling the board to more quickly completely eradicate the disease from the State.

TUBERCULOSIS.

We now come to probably the most important topic to be treated in this paper, the disease of tuberculosis, which since the discovery by Prof. Koch of Berlin, 1882, of its germ, called by him "bacillus tuberculosis," has come to be recognized as identical in animals and in man. No other disease affecting the human race is more surely fatal in its effects, from the fact that scientists, as yet, have failed to discover a cure for the disease after it has passed its primary and incipient stage of development. Tuberculosis prevails throughout the length and breadth of this country, and more human beings die yearly from it than from any other disease. In Chicago, over eleven per cent of the total annual deaths are due to tuberculosis, while in New York City it claims one in every seven. Previous to the discovery of the germ by Prof. Koch, the lung manifestation of tuberculosis in man was called consumption. Thorough investigation subsequently demonstrated that not only the pulmonary disease previously called consumption in man is due to tubercle bacilli, but that many diseases affecting other organs, the skin and the bones, should be diagnosed tuberculosis. Experimenters have also thoroughly demonstrated the contagious nature of the disease as between individuals, and that it is frequently communicated from domestic animals to man by contact and through food products, to wit: the flesh of the affected animals, the germ frequently being found in glands lying between the muscles (red meat) where there has been an insufficient supply of heat in the process of cooking to destroy the germ, and in the milk from a tuberculous animal, which, in most cases, is received into the human system, or the system of the young animal, in its natural condition. It has been claimed by some scientists, that milk from a tuberculous cow does not contain tubercle bacilli except in cases where the udder of the animal is affected with the disease, and that, in view of the fact that cooking the meat was supposed to be an effective process in destroying the germ, the danger of infection to the human family from animal food products is quite small. More thorough investigations, however, have demonstrated that it requires a greater degree of heat than is ordinarily used in cooking meats to destroy the germ when located in the interior of the cut of meat being cooked, and that the milk from a large percentage of tuberculous cows contains the tubercle bacilli when the udder is to all appearance perfectly healthy. The latter fact has been demonstrated both by microscopic examination of specimens of milk taken from diseased animals where the udder is free from disease, but more positively by numerous experiments in feeding milk from such tuberculous animals to guinea pigs and other animals used for such experiments. In view of the above facts, the question of dealing with tuberculosis in dairy and breeding cattle becomes, from a sanitary standpoint, one of the most important questions for future legislation and State supervision.

Prof. James Law, probably the most eminent veterinary pathologist in the United States, says: "Tuberculosis is so extensively prevalent and proves such a veritable scourge throughout the civilized world, that no disease is so deserving of close and accurate study, or of the enforcement of effective measures for its suppression. Cholera, yellow fever and smallpox which occasionally invade our territory, creating universal terror and dismay, claim but few victims as compared with this ever-present, universally devastating plague. These other plagues are quick, severe and fatal, it is true, but for this very reason they can be promptly recognized and checked, and even stamped out, whereas tuberculosis is equivocal and underhand in its method, slow and uncertain in its progress, and on this account escapes recognition and proves by far the most deadly of any single disease attacking the human family.

If the 5,490 deaths from tuberculosis which occur every year in the city of New York, could be brought together in an epidemic lasting but one week, no smallpox, cholera or yellow fever scare would approach the panic which would thus be created; for when did all three diseases together create such mortality in this city? Nay, if we take the whole civilized world and compare with the tuberculosis mortality all the accumulated deaths from war, famine, plague, cholera, yellow fever and smallpox we find that the latter are, comparatively, very insignificant. Yet tuberculosis, like every germ disease, is absolutely preventable, and is allowed to continue its career of death only because of reprehensible ignorance and criminal indifference."

While tuberculosis does not spread so rapidly by contagion in a herd of cattle or among individuals of the human race as many other contagious diseases that should also be classed as highly contagious, it is more dangerous, from the fact that once implanted in the animal, or in the human, its course is sure and most always fatal. It is remarkably stubborn in yielding to treatment even in the earliest stages, and, in most cases, it has progressed to a considerable extent in development and spread in the system before its nature is discovered by the veterinarian or the physician.

Prior to the manufacture by Prof. Koch of what is known to the scientific world as Koch's lymph, or tuberculin, which—while it failed as a cure, is now conceded by all scientific experimenters to be a most effective diagnostic agent in discovering the presence of tuberculosis in an individual—it was almost useless to undertake measures to eradicate this disease from among the dairy herds of the country, because of the great difficulty experienced in diagnosing cases that were not well advanced, and the impossibility of doing so where the centers of infection were in deeply located glands throughout the animal anatomy. Only the most advanced cases of disease in any herd could be discovered by the most thorough physical examination, and while these, upon discovery, could be destroyed, probably a majority of the animals infected in different degrees of development would be left in the herd and continue to spread the infection both among the members of the herd and through the milk product to human beings. Since tuberculin is an almost infallible agent, when properly used, to discover the presence of tuberculosis in its most incipient form in an individual, one necessary means has been placed in the hands of sanitarians of dealing effectively with tuberculosis in domestic animals.

The tuberculin test upon cattle is made in the following manner: On a day selected for the commencement of the test four or five temperatures are taken at intervals of two hours, for the purpose of ascertaining the normal temperature of the animals. In the evening of the same day, with a hypodermic syringe, about two cubic centimeters of diluted tuberculin are injected into the neck of each animal, and on the following day, commencing early in the forenoon, at intervals of two hours, temperatures are again taken. If any of the animals show a maximum rise of two or more degrees in temperature over the highest temperature of the previous day, it is considered safe to pronounce such animals affected and all such should be destroyed. Animals that show a marked rise in temperature, but of less than two degrees maximum rise, should be isolated from the herd and, after the expiration of three or four months, retested in order to be sure that no centers of infection

remain. The only reason why tuberculin is not absolutely infallible in such tests is the ever constant liability that some individual animal may have a rise in temperature on the second day of the test due to purely local causes. Mistakes in this regard can most always, however, be avoided if the test is conducted by an experienced veterinarian and conditions surrounding each animal during the test closely observed.

During the year 1897 our board tested 700 dairy cattle, of which number 77 showed a maximum rise of two or more degrees. These 77 animals were all slaughtered and carefully inspected post-mortem, and not one failed to disclose the presence of tuberculosis in the system. A herd of 150—one that had been tested three times during the past two years—was retested and no disease was found. The result of the test on this herd shows the possibility of eradicating the disease among herds tested. Among the tests made by the board, I will stop to mention but one in particular. This was a herd of 35 animals near Hebron, McHenry county, tested in October, 1897. Of 35 animals tested, 25 showed a reaction ranging from 1.8 degrees to 4.8. All of the 25 animals were slaughtered and carefully inspected post-mortem and each animal was found affected. Just think of the amount of milk poisoned with the germs of tuberculosis that was daily being sold upon the market from these tuberculous cows and being consumed by human beings, probably much of it by children who are especially susceptible to the disease, then realize the great importance of dealing effectively with this scourge, not only to prevent financial loss to the owners of cattle from its destruction of so many members of the herd, but that the health of our children may be preserved from its deadly attacks. The history of this herd, which I took pains to secure, points strongly to the spread of the disease in the herd by contagion. It has been claimed by some that the use of tuberculin is dangerous to healthy cattle. This claim is completely refuted by the record throughout the world of several years' experiments, as well as by the fact that in preparation of the tuberculin it is subjected to a heat of 212 degrees F., sufficient to destroy all germ life.

It has for many years been supposed that consumption was hereditary, as this was the only theory that could be advanced to explain its presence in so many members of a family, sometimes running through several generations. Since the discovery of its contagious nature, however, and it is seen how easily the disease is transmitted from mother to offspring through the milk, and that in cattle where the uterus is affected, which is very rare, the mother always aborts, the hereditary theory as accounting for the spread of the disease has been almost entirely abandoned. While it may be possible, under certain conditions, that the disease may be communicated in this way, and while it is certain that conditions may be inherited which render the subject quite susceptible to the contraction of the disease by contagion, the cases that can not be accounted for by contagion and can be traced to heredity are so rare as to deserve but little consideration.

I have probably said sufficient to impress upon your minds the great importance of effective efforts to extirpate this disease from among the cattle of our State, not only to protect from financial loss, but because of the paramount importance of protecting, especially, our children, and all human beings from this most fruitful and potent source of contagion. The extent to which the disease prevails is unknown because of the lack of supervision of slaughtering establishments throughout the State, but sufficient investigations have been made to disclose the fact that in many herds from 25 to 50, and in some as high as 75 per cent of the animals, where the sanitary conditions of the stables in which they are kept are codemnable, are affected with tuberculosis, the manifestations of the disease ranging from the most incipient miliary form to the most advanced development of the disease, while, of course, there are many herds entirely free from the disease. In the animal, as in the human, the disease is slow to develop, and consequently an animal may be affected for one, two or three years before the nature of the disease can be discovered by a physical examination. Unlike the manifestation of the disease in the human, when the lungs become seriously affected, the body becomes emaciated; in many cases in cattle, to the great surprise of the inspectors holding post-mortem examinations, the lungs are found to be a

mass of tuberculous degeneration in animals in fairly good flesh, and otherwise in apparently good condition. Very little disease is found among stock cattle allowed to run at large, and, as most cattle raised for beef are fattened and sent to market usually at the age of three or four years, the disease does not reach that degree of development among them that it does in dairy herds, hence the efforts to deal with this disease should be confined to the dairy and breeding herds. If those could be freed comparatively little, if any tuberculosis would be found in our cattle, except where communicated by contact from human beings.

The appropriations in this State today are insufficient to effectively deal with this disease. Realizing, however, the great importance of doing all that can be done, our board has, during the past three years, conducted tuberculin tests wherever applications were received from owners of dairy or breeding herds, upon the owner in each case agreeing to destroy all animals showing a reaction sufficient to indicate the presence of tuberculosis. During that time all of the cattle kept at the various State institutions were tested, and while one or two herds were found to be free, the diseased animals among other herds were numerous, and in some instances a large percentage of the animals in given herds were condemned and destroyed. Several cities, among them Ottawa, Peru and LaSalle, now have ordinances requiring every dairyman selling milk in the municipality to have his animals tested with tuberculin and declared free from all symptoms of tuberculosis. This is a step in the right direction. The law should require every dairy animal in the State from which milk is sold for consumption, as well as all breeding herds, to be tested, and appropriations should be made to do the work and to, in part at least, compensate the owner for the loss entailed by the destruction of their diseased animals, and after tests are made the animals subsequently introduced into the herds should be tested before being received. It is only a question of time when this legislation must come. Maine, Massachusetts, New York, Pennsylvania and other eastern states have taken forward steps looking to the eradication of this disease, and by law, have prohibited the introduction of any dairy or breeding cattle into the State, except when accompanied by a certificate showing that they have been tested with tuberculin and found free from tuberculosis. This is much desired legislation, and all efforts subsequently to be made to stamp out this disease can only be made successful by hearty coöperation between the authorities and the cattle owners. No law can be enforced where the necessity of the law is not apparent in the minds of a majority of our citizens, and when it shall become apparent to a majority of the citizens of Illinois that such legislation and appropriation are needed, the Legislature will be quick to respond, the necessary coöperation between the authorities and the people will follow, and it will be but a comparatively brief space of time until Illinois can be declared free, in so far as its dairy and breeding cattle are concerned, of tuberculosis, and the health and happiness of our children and our families will be protected as never before.

REARING AND FEEDING BEEF CATTLE.

By John O. Honnold, Warrenton, Illinois.

The question of rearing and feeding beef cattle is one of vital importance to the farmers of Edgar county, the State and nation, since millions of dollars are invested in this, the most important industry on the farm.

There has never been before such a demand on the part of the farmers for education on the subject of rearing and feeding live stock by the most profitable and economical methods. Today we read our agricultural and live stock journals, we receive the bulletins and publications from our Experiment Station at Urbana and neighboring states, carefully studying their contents, and attend every Farmers' Institute in Edgar county and as many more as possible, that we may attain a higher degree of excellence in our chosen profession. I know of no other subject pertaining to the farm that affords me more pleasure than a discussion of beef cattle, for I could not talk on

any animal that I love more to feed than the calf. There is no hope for the stock feeder unless he has a good calf with which to start. It practically requires more feed to fatten an inferior steer which will never make prime beef, and receive one or two dollars less on the hundred pounds in the market.

One of the discouraging features which feeders have to contend with in Edgar county as well as in nearly every other locality is the difficulty of buying desirable stock. The dairy industry has of recent years been somewhat encouraging in certain localities where conditions have been favorable, and in other localities less suited for the business many farmers have been hasty in buying dairy cows, and notably Jerseys, and in many cases of very inferior quality. While at the same time they should have been endeavoring to maintain a high standard of beef cattle. They have crossed these grade Jerseys with a beef animal and as a result a vast number of scrub calves are produced which have almost worked a lasting injury to the industry. It is no discredit to the Jersey cow for I admire a good Jersey, but the man who practices such a mixed method of breeding has yet to learn the first principles of true live stock husbandry. If you must have Jerseys, in the name of all that is good, breed for Jerseys or dairy stock, and keep them pure. Remember that there are two distinct breeds of cattle, dairy and beef—and let us keep them separate and distinct.

The finest finished calves are produced by allowing them the milk from the cow, from spring until about the first week of September, after the sultry August and flies. The calves should be weaned gradually, being previously allowed to run on a grass lot with fresh water at their command. They should be taught to eat grain, consisting of shorts, bran, oats, corn, or oil meal, or a combination of a part of each. Continue feeding some grain after weaning and start them into the winter in good flesh and in a growing condition. They can thus be weaned without checking their growth.

When it is necessary to use the cow's milk for other purposes, the calves are usually reared on skim milk and as a result we find a large per cent of our feeding cattle over the country stunted, poorly developed, they do not fatten well and the owner loses money every day he feeds them. The only difference between the whole milk is simply that the fat has been removed in the form of cream to make butter. There has recently been considerable investigation at various experimental stations, to determine the best substitute for this fat which could be added to the skim milk and thus make up the deficiency of the skimming and in the end produce a well finished calf. Some of the materials used at various experimental stations as a substitute for the fat, are linseed meal, Blatchford's food, corn meal, oat meal, cotton seed meal, wheat bran and ground flax seed.

While at the Indiana experiment station I had the opportunity of making a test of a part of these supplemental foods. Ten calves were used. They were divided into four lots. The calves were almost the same weight and had similar conditions and surroundings.

Lot I. Received whole or fresh milk.

Lot II. Skim or separator milk.

Lot III. Skimmed milk to which was added finely ground corn meal.

Lot IV. Skim milk to which was added ground flax seed.

The calves were each weighed separately each day and their feed was weighed separately so that a very accurate account of the test could be had. The results of the tests after two months showed an average daily gain of 1.13 pounds for the skim milk alone, 1.18 pounds when corn meal was added to the skim milk, 1.35 pounds for the skim milk and flax seed, and 1.55 when the whole milk was used. Comparing the four feeds, the skim milk was hardly satisfactory, the calves were not thrifty and did not develop properly. The corn meal did not give good results, because for quite young calves the meal is irritating and seems to cause scouring, and is not very profitable. The lot which received skim milk to which was added an average of five ounces of flax-seed meal, did well and made almost as good gains as those fed on whole milk.

They had a fine finish and were well developed. When skim milk is fed to calves it is advisable to add finely ground flax seed. A prime requisite to success in calf feeding is regularity; let the calves be fed at the same time and in the same order. Next to regularity regard the amount of milk fed. In case of skim milk 15 to 20 pounds, depending on the ability of the calf to assimilate its food. More skim milk calves are killed by overfeeding than underfeeding.

Before one should think of entering the stock business he should first stop to consider whether he has the necessary facilities. A notable requisite is a good supply of fresh water, the water from a deep well or spring being preferable. Many farmers make no calculation as to how their stock are to be protected during the winter. One should provide shed room, or better, a commodious barn. The barn should be as comfortable as the horse barn. How could we expect any profit out of any animal in the cold winter nights with nothing but the cold, bare heavens above him, or probably a panel of fence to shield him from the cold? If we want profit we must think of how we would like to be treated if we were of the brute creation. Artificial heat is cheaper to keep up animal heat than feed. Cattle eat more when the weather is cold. They eat to keep from shivering and shiver to eat, until they impair their digestion, then there is no gain, consequently our feed is lost and the cattle come out lighter in the spring than they were in the fall.

We sell our scrub stock to get better; the same rule is adopted and no better results follow; we then give up in despair and go to raising wheat, hogs and hominy until we exhaust our land and haul it to market on four wheels. Keep posted in the markets of the world's supply and demand, the finance, political issues, the results made at the experimental stations and keep abreast of the times. This is a progressive age; because our forefathers plowed with withers tied to the end of the oxen's horns and plowed with forked sticks is no reason why we should do the same.

The most essential points is to have good blood, and that every pound of feed is lost when the calf is not gaining. The milk required to make one pound of butter will make three pounds of veal. It will not pay to rob the calf for a few pounds of ten cent butter. It is like the old adage: "As the twig is bent the tree will incline," just as the calf is started the price is set. You can never with the same care after a calf is stunted make it gain on the better one. The better one will always be the larger with less feed, because the digestion of the stunted calf has been impaired and will consume more feed per pound of gain. It is very hard to make calves gain in winter. Give them grain twice a day; a good combination is ground corn and oats.

Where we sometimes miss it is in our pasture; we keep too many that eat off the pasture so bare that the sun comes in and burns the ground; that kills out the grass and leaves a coat of weeds for next summer. Keep just enough cattle so you can have grass that they can live on until it snows; by so doing you have saved the time of feeding and cost of feed and promote a longer growth without checking by dry feed.

The yearlings and two-year-olds should be run through the winter on clover hay, fodder and grain. With our large crop of corn, 37 per cent of the value of which resides in the fodder, we have little or no occasion to grow timothy hay for our cattle, certainly the cheapest and best roughness we have is a combination of fodder, either cut or shredded, and clover hay. Clover hay is much more valuable than timothy hay as a feed for stock. Some few practice cooking or steaming the feed for cattle, but the experiment stations have reported from numerous experiments that it is hardly profitable, stating that cooking or steaming the feed makes it more difficult to digest.

The grinding of feed and especially corn for cattle is being practiced quite extensive during recent years. There is, however, some controversy in regard to this matter, but the feeders are becoming more in favor of grinding their grain. The corn is thus put in a much better condition for digestion. But in feeding ground feed and especially corn to fattening steers, there is some danger in a few of the cattle eating too much and thus be thrown off feed. This can be overcome by stall feeding. When ear corn is fed this ob-

jection is hardly as frequent. In feeding corn in the ear it will usually pay for the trouble of soaking the corn, and this is practiced by many of our feeders. The steer can seldom be fed with profit past two years old.

From the young calf they should be crowded continuously, producing 1,200 to 1,400 pound steers at about two years old. We have best results by feeding well through the winter and then turn on early grass, giving all the grain they will eat and market in June.

As to feeding linseed meal, chop feeds, hominy chops, and various other feeds which are found on the market, I consider them hardly profitable to buy and feed in large quantities when our other feed is so cheap. They are, however, very profitable to feed to young cattle to some extent, and in small amounts to fattening cattle, and especially linseed meal, as it keeps the system in better condition and gives a fine finish.

SWINE DEPARTMENT.

OUR EXPERIMENT IN PIG-FEEDING.

By Louis D. Hall, University of Illinois.

Corn is the pig-feed of our country. The American hog of today has been developed along with Indian corn; and the wide sale of American pork in foreign markets, as well as its enormous consumption at home, is due to the fact that our's is the corn-growing country of the world. In view, therefore, of the close inter-dependance of these two great products, any facts that we can learn with regard to their relations to each other will certainly be of value to the feeder; and it has been considered worth while at the College of Agriculture of the University of Illinois to spend some time and money in looking into some of the problems which arise in the mind of every thoughtful farmer. The question—"Do we feed our hogs too much corn?"—is asked over and over again, and a glance at every farm paper shows that there are among our farmers firm believers, in both, negative and affirmative. While we must accept the statement of the chemist and physiologist, who tell us that corn is not a "properly balanced ration" for the hog, and of the statistician, who proves that the markets are discriminating against the lard hog, we must, first of all, determine whether or not we can profitably replace corn to any extent as a part of our hog-feed; for so cheap and valuable a crop as this ought certainly to take precedence over all other feeds so long as we remain within the limits of profit, even though the highest development of the animal is not attained. It was with the idea of learning something about this limit to which other feeds can be used with corn that the following experiment was conducted by the writer as class work last year, at the suggestion and with the aid of Professor Davenport:

Six pigs were chosen in July, 1898, from a litter of nine pure-bred Poland-Chinas farrowed in May. They varied but slightly in weight from fifty pounds, were evenly divided as to sex and presented similar characters throughout. After being marked and weighed, each animal was put into a separate pen in the hog-house under exactly similar conditions. The pens were numbered in order, from 1 to 6, the males being placed in odd numbered pens, and the females in even numbered pens. Three rations were decided upon, viz.: (1) corn; (2) corn with different green feeds, (rape, cowpeas, and sugar beets, successively); and (3) corn with oats in the proportion, 3:1. Each animal was to be fed and watered as nearly as possible, according to his appetite and capacity; and slop, (shorts mixed in water); salt and charcoal were to be given to all in equal quantities, when needed. The corn was to be fed in the same way in all cases, so as to give a fair comparison of the other feeds. In order to determine the effect of grinding grain for pigs, it was fed ground and whole in alternate fortnights. A third comparison, that of sex, was secured by selecting a male and female for each ration. Weekly records were kept of the weight of the grain and shorts, and daily records of the green feeds, which was brought directly from the field when fed, except in the case of the beets. Each pig was weighed every week, and to secure accurate figures, weights were taken on three successive days, the average being used as the true weight for the second day.

The gains and feed consumed for the first twelve weeks were as follows:

TABLE I.—Result for twelve weeks, (pounds.)

Lot.	Number.	Weight at Beginning.	Feed Consumed.				Gain.	Gain Per 100 lbs. of Corn.	Gain Per Bushel of Corn.	Average Amount of Corn Per Week.	Average Gain Per Week.
			Corn.	Shorts	Green Feed.	Oats.					
I.	1	49.2	180.1	35.1	.....	.....	43.5	24.1	13.1	3.6	15.0
	2	54.7	179.4	35.2	.....	.....	45.8	25.5	14.3	3.8	14.9
II.	1	50.0	182.6	36.4	*251.6	.....	56.7	31.0	17.4	4.7	15.2
	2	47.3	176.6	34.4	†241.3	.....	50.9	28.8	16.1	4.2	14.7
III.	1	49.0	116.4	35.1	.....	38.8	39.9	34.3	19.2	3.3	9.7
	2	52.4	110.3	34.3	.....	36.7	35.1	31.8	17.8	2.9	9.2

*Rape.....	203.8	†Rape.....	203.8
Cowpeas.....	21.0	Cowpeas.....	21.0
Sugar beets.....	26.8	Sugar beets.....	18.3

Lots I and II ate practically the same amount of corn, notwithstanding the fact that each pig of Lot II consumed about 250 pounds of green feed in addition; much less corn was eaten by Lot III. The largest gain was made by the pigs of lot II and the smallest by those of Lot III, showing that while the addition of green feed to a corn diet augments the gain without reducing the amount of corn consumed, the addition of oats lessens the amount of corn consumed and at the same time reduces the gain. Expressing the average results in terms of 100 pounds we have:

TABLE II.—Twelve Weeks.

	Lbs. Gain.
Lot I, 100 pounds corn.....	24.8
Lot II, " " and 137.7 pounds green feed.....	29.9
Lot III, " " and 33 1/3 pounds oats.....	33.0

We find, by substracting, that 137.7 pounds of green feed are responsible for 5.1 pounds of gain, and 33 1/3 pounds of oats are accountable for 8.2 pounds of gain, though of course they have this feeding value only when fed with corn in this proportion. We may again reduce these figures to a basis of 100, thus:

TABLE III.—Twelve Weeks.

	Lbs. Gain.
Lot I, 100 pounds corn.....	24.8
Lot II, " " green feed (fed with corn).....	3.7
Lot III, " " oats (fed with corn).....	24.6

It should be noticed here that, while Table II shows that the oats fed pigs gained more per 100 pounds of corn than the others, their actual gain was much less, so that this difference in favor of oats is proportional rather than real. In table III we find that 100 pounds of oats, fed with corn in this proportion produce as much gain as 100 pounds of corn, while it takes about 670 pounds of green feed to make the same gain when fed with corn. Hence the green feed is the cheaper pork producer, since this 670 pounds of rape, cowpeas and sugar beets will cost ordinarily little more that one fourth as much as the 100 pounds of oats which are required to make this same gain. The superiority of corn and green feed over corn alone is apparent from Table 1. It is also evident that during this period the corn and oats ration was less profitable than corn alone, since a pound of oats was found to have the same pork producing power as a pound of corn, and costs nearly twice as much.

The next table shows the results of grinding the feed every other fortnight as explained. The oats were ground with their corn.

TABLE IV.—Result of Grinding Feed.—Twelve Weeks.

Lot.	No.	Corn Consumed.		Gains.		Gains per 100 Lbs. Corn.		Gain per 100 Lbs. Corn Due to Grind'g.
		Ground.	Whole.	Feed Ground.	Feed Whole.	Feed Ground.	Feed Whole.	
I.	1	91.2	88.9	27.3	16.2	29.6	18.2	11.7
	2	92.6	86.8	29.7	16.1	32.1	18.5	13.6
II.	1	92.5	90.1	34.2	22.5	37.0	25.0	12.0
	2	87.9	88.7	30.6	20.3	34.8	22.9	11.9
III.	1	56.6	59.8	25.8	14.1	45.6	23.6	22.0
	2	55.5	54.3	24.5	10.6	44.1	19.3	24.8

The first noticeable fact here is that about the same amount of corn was consumed whether ground or whole. The gains were quite different, however, and we notice that the grinding made the greatest difference with the oats fed pigs, whole oats not being relished by young shoats. Estimating the grinding at 12½ cents per 100 pounds, and pork at three cents per pound, the last column shows that during this period of the experiment it was plainly economical to grind the grain.

For the next eight weeks the gains and amounts of feed were as follows. The slop was withdrawn at the beginning of this period, and Lot III was fed shorts instead of oats.

TABLE V—Results for 8 weeks (pounds).

Lot.	Num-ber.	Weight at begin-ning.	FEED CONSUMED.			Gain.	Gain per 100 lbs pounds of corn.	Gain per bushel of corn.	Average amount of corn per week	Average gain per week.
			Corn.	Green feed.	Shorts.					
I.	1	92.7	162.7	.....	.....	25.2	15.5	8.7	20.3	3.2
	2	100.5	178.6	.....	.....	24.3	15.8	8.8	22.3	3.5
II.	1	106.7	206.3	*20.30	.....	49.6	24.0	13.4	25.8	6.2
	2	98.2	182.6	†175.0	.....	35.5	19.4	10.9	22.8	4.4
III.	1	88.9	153.1	.....	19.0	30.2	19.7	11.0	19.1	3.8
	2	87.5	181.8	.....	29.1	46.6	25.6	14.3	22.7	5.8

*Rape—105.0 lbs. Sugar beets—98.0 lbs.

†Rape—105.0 lbs. Sugar beets—70.0 lbs.

As in Table I. the amount of corn consumed was not lessened—in fact, it appears even greater, by the addition of green feed, and the gain was also greater, while the pigs on the corn, and shorts ration ate less corn and made less increase than the others. As before, we may reduce our results to a basis of 100, for comparison.

TABLE VI.—(8 Weeks.)

	Lbs. gain.
Lot I. 100 lbs corn.....	15.6
Lot II. 100 lbs corn and 97.1 lbs green feed.....	21.7
Lot III. 100 lbs corn and 13.5 lbs shorts.....	22.6

From this we find:

TABLE VII.—(8 Weeks.)

	Lbs. gain.
Lot I. 100 lbs corn.....	15.6
Lot II. 100 lbs green feed (fed with corn.....	6.3
Lot III. 100 lbs shorts (fed with corn).....	51.8

The averages in Table VI show a slightly larger relative gain for Lot III than for Lot II, but Table V shows that the actual result was about the same in both cases, the difference between the individuals of each lot being much greater than the variation between the separate lots. We find here a much higher relative efficiency for shorts than was found for oats in the preceding period with the same pigs (Tables III and VII) and though Lot III gained somewhat less per 100 pounds of corn in the second period than in the first, their actual gain was much larger, as is seen by comparing Tables I and V. It appears here that the restricted diet of Lot I was relatively much less efficient than in the first period, while the varied diets of Lots II and III were relatively much more efficient, indicating, perhaps, some physiological effect from the varied diet of the first twelve weeks reacting during the next eight weeks. Referring to Table VII, the green feed was fed more economically than the shorts, since it costs not more than one-twentieth as much per pound when grown on the farm, and produces somewhat more than one-tenth as much gain per pound (Table VII) when fed with corn. Further, it is seen that the corn and oats ration was more profitable than corn alone, producing larger actual gains and larger gains per 100 pounds of corn; that the pigs of Lots I and II ate about one and one-half times as much, and those of Lot III twice as much corn per week as in the first period; that the gain for 100 pounds of corn was less in each case than during the first period; that the weekly gains of Lots II and III were greater than during the first period, and those of Lot I less than during the first period, showing the bad effects of continued exclusive corn feeding and the good effects of nitrogenous feeds with corn in maintaining the capacity and efficiency of the animal.

The next table presents a comparison of the ground and whole corn consumed during this period, with the resulting gains.

TABLE VIII.—(8 weeks.) *Results of Grinding Feed.*

Lot.	Number.	Corn consumed.		Gains.		Gains per 100 lbs. corn.		Gain per 100 lbs. corn due to grinding.
		Ground.	Whole.	Feed Ground.	Feed Whole.	Feed Ground.	Feed Whole.	
I.	1	96.3	66.4	17.5	7.7	18.2	11.9	6.3
	2	104.0	74.6	16.6	11.7	16.0	15.7	.3
II.	1	126.1	80.2	30.5	19.1	24.2	23.8	.4
	2	103.3	79.3	22.5	13.0	21.8	16.4	5.4
III.	1	85.0	68.1	11.1	9.1	24.8	13.4	11.4
	2	101.7	80.1	30.2	16.4	29.7	20.5	9.2

Unlike Table IV, we find here a marked difference between the amounts of ground and whole corn eaten, due, doubtless, to the fact that when the slop was taken from the rations the soft food became more acceptable to the animals. Since there is a wide variation between the amounts of ground and whole corn consumed, we find a corresponding variation between the gains produced by the ground and whole feed in each case, but there is less difference between the two columns which show the gains per 100 pounds of corn. In all but two cases we see that the ground corn was more economical than the whole corn, estimating the value of pork and the cost of grinding as before. The difference was most pronounced, as in the first period, in Lot III, but in no case was the advantage of grinding so marked as was found uniformly during the first twelve weeks. Perhaps at the end of a following period, when the animals had become more mature, the whole corn would have been found the cheaper feed.

In Tables I, IV, V and VIII, the pigs numbered 1 are males and those numbered 2 are females. We must conclude from these tables that so far as this litter of pigs was concerned, feeding qualities depended more upon individuality than upon sex, at least for the first twenty weeks in which they were fed.

While it is true that one experiment can not make a law, it may very plainly indicate a principle. It seems evident here that the ration made up of corn with green feed induced the largest consumption of corn, made the greatest increase and produced the cheapest pork; that when corn formed the bulk of the diet it made a more profitable feed than corn with oats in the proportion of 3.1, for the three months during which slop was given with all the rations; that during the next two months, corn alone was less profitable than for the first three months; that shorts fed with corn gave better gains for the food consumed than oats fed with corn; that grinding the feed is decidedly economical for the first three months and fairly so for the next two months in most cases, and especially in the case of corn and oats or corn and shorts rations; that sex was of no consequence so far as efficiency in feeding is concerned; that we are not "feeding too much corn," but that we are feeding too little of those feeds which will make our corn a more profitable feed by inducing a large consumption of it.

SHEEP DEPARTMENT.

SHEEP RAISING.

By R. M. Bell, of Decatur.

He said he would not talk about sheep raising in Australia or on the ranges but about the work in Illinois. Every man must think of sheep raising as suits his own particular farm. When that is done he can make money at it.

We should know something about sheep raising on the plains, because ———— these are our great rivals. The speaker would not refer to politics, because sheep have been in politics long enough. Wool is no longer the main object in raising sheep. We raise sheep now for mutton and wool. The mutton will make it pay, and the sheep will make money for the owners. The sheep raisers can now contend with the sheep ranges because they have learned how to raise sheep here. Sheep raising must be in connection with agriculture. Our farms are getting older. Some object to statements that the land is wearing out, but it is easy to point out instances of land at one time worth \$100 selling for half that. The land is wearing out. Something must be done.

SHEEP AND THE SOIL.

Raising sheep will help keep up the fertility of the soil, and we must keep up this fertility or the next generation will say that it can do nothing with it.

A farmer said he could not pay cash rent on a certain farm because the weeds were so thick. We can have clean farming by raising sheep. They keep the weeds down. One farmer said sheep were worth \$1.50 a year to keep down weeds.

Don't think that we can raise sheep in Illinois for wool. Even if they do keep up the fertility of the soil and keep down weeds they will not pay raised for wool only. They must be raised for mutton. Raise lambs to sell. A million and a half lambs are sold from Colorado. In Nebraska, where 8 cents a bushel would be brought by corn, the farmers get 40 cents a bushel by feeding it to sheep. In Illinois thousands of bushels of corn are piled up in cribs that would make money for our farmers if fed to sheep.

DOGS.

Farmers have trouble with dogs and parasites. In this iron age, fence the dogs out. Many think it does not pay to fence the farm, but no man can do perfect farming with unfenced farms. The parasites are numerous, but they can be controlled. Some diseases can be prevented, even if they can not be cured.

Think out this problem of sheep on your farm and you will think out a way to be easily and profitably followed. Think of it on Sunday, the very subjects of the day, the Psalm about "The Lord is my shepherd" brings it to mind.

POULTRY DEPARTMENT.

RAISING, CARE AND MANAGEMENT OF POULTRY.

By Mrs. Carter, Hammond, Ill.

The first question to be considered when going into the poultry business is a suitable location, which should be the south or southeast side of a rolling piece of land which should be lower on the south and east than on the north, then when the heavy rains fall they will completely wash the yards, and the chickens will receive the benefit of the sun in cold weather. The yards should be set in plum trees about twenty-five feet apart. These will furnish the chickens shade in warm weather. The ground should be broken up each autumn and sowed in rye. A load of gravel and sand should be thrown in each yard once a year. The houses for successful poultry raising should be six feet high on the north side and eight feet high on the south side, with the roof sloping one way (to the north). For thirty hens the poultry house should be twenty-four feet long and twelve feet wide divided into two rooms; a room for roosting purposes and one for scratching purposes. The room for roosting purposes should be ten feet long and the room for scratching, fourteen feet long. The nests may be placed in the scratching room. The house should be built very warm and free from cracks and knot-holes as these will serve to let in the cold air. It should be lined inside and weather-boarded on the outside, with the windows low down so the fowls can stand inside and see out; a common house window will do very well. If one is placed every five feet along the front of the building and one foot from the ground. The house should face slightly southeast almost to the south. All doors should be closed in cold weather at night, to prevent loss of fowls from two and four legged animals as well as disease.

Setting hens are understood properly by very few people. I give my plan which has proved a success in every way. Have a room exclusively for the setting hens and when Biddy wants to set real bad, place a nest in the room for setting purposes and put two or three china eggs or old eggs in it and at night move Biddy to the nest, close it up and keep her there until the next night, then remove the cover and you will find that she will most always set. The third night put the selected eggs under her and keep a trough or a pan filled with shell corn and a bucket of water always in the room. A box of gravel or grit should also be kept in the room. When desired one can set several hens in one room. When a hen hatches remove them after twenty-four hours to a coop and feed millet seed and nothing else until the chickens are large enough to eat wheat and corn. Each coop should have a run about three feet by four feet so the hen can move about and see her chickens and so arranged that the sun will shine in the run. Let the chickens run free, but keep the hen up in the run for seven or eight days. The run may be covered on top to prevent the rains from drowning the chickens. A good insect powder should be plentifully used in the nests of setting hens once each week. The coops should be painted with coal oil, black oil, turpentine and carbolic acid once every ten days, also the roosts of the poultry houses should be kept well painted with liquid lice-killer, composed of two gallons of coal oil, one-half gallon of turpentine, one gallon of black machine oil and one-half gallon of crude carbolic acid.

If the following rules are followed out the results will be pleasing and profitable.

1. Cleanliness in everything.
2. Regular feed and water.
3. Prevent freezing at all times.
4. Always feed grown fowls corn at night.
5. Feed some bran, corn-meal and shorts well mixed with warm water first at morning in cold weather.
6. Put sheaf oats and wheat in the scratching shed every day in the winter time. In the fall put away sheaf oats to feed to the chickens in the winter time.
7. Sell all hens before the first of January that are over two years old.
8. Feed parched corn once a week in winter.
9. If possible have a patch of sun flowers for the fowls to run to in summer.
10. Provide shade for summer and a shed or room facing the south furnished with straw for winter.
11. Keep the old fowls and the young ones separate in the summer.
12. Keep feed always where the young chickens can get it.
13. Millet seed is the best for growing chickens.
14. Full blood stock is always the best and cheapest. The best breed is the one you like.

FACTS VERSUS THEORY IN POULTRY RAISING.

By A. H. Currier, Rockford, Ill.

First let me give you a few figures that are facts, as to the extent of the poultry industry as it is today in comparison with other productions. By a careful statistician we have in the United States 375,000,000 chickens and 40,000,000 other fowls. Eggs laid the past year, 14,400,000,000, amounting in value to \$165,000,000. Poultry sold as meat, \$125,000,000, making a total of \$290,000,000.

The value of the cotton crop, 1897, was \$259,000,000. The value of the wheat crop, 1897, was \$237,000,000.

Successful poultry culture is no haphazard affair, but is secured only by regular methods, close application and personal attention to the small details that experience has taught is necessary. Especially is this true with artificial hatching and brooding. In theory the hen is entirely supplanted as a mother. The incubator manufacturers tell us the natural method is a "back number."

I found the following in one of our leading journals: Fifty chicks from 50 eggs. Mrs. M. T. Deval, Old Church, Va.; hatched with incubator 49, 50 and 48 chicks each, from 50 eggs and never saw an incubator before. You can do as well. And another: Money makers are found in incubators and brooders; over 1,000,000 chickens hatched by our incubators last season. Another: 100 per cent is not an unusual hatch with our machine. The question now comes up, are incubators and brooders a success, or as they are represented? I have it from good authority, of an admission to a friend by the president of one of the largest incubator factories, that of 100 buyers of machines 60 per cent were failures, 25 more were fairly successful and only 15 made it a complete success.

A few years ago an acquaintance visited a large poultry plant in course of construction in California. The brooding house was large and well built, fitted with hot water pipes and all modern appliances. Electric bells would call the chicks to their meals, or if a threatening storm approached you

"press the button" and the chicks would run under shelter. Two years later the same party visited the ranch and found everything abandoned and overgrown with weeds, and learned that the product of this large plant had been "planted" under the sod. This has not been the result of all large poultry plants, as hundreds are now in successful operation, but many just such cases can be found throughout the country. This state of things, I think, is brought about by enthusiasts reading extravagant statements by incubator manufacturers and others of the great profits and light work in the poultry business.

To make poultry raising a success one must have capital, perseverance and some practical knowledge of the business. It would pay any young man wishing to engage in the business to secure a position with a successful breeder, should he get only his board, as the practical experience is worth barrels of finely written theories. The government experimental stations are now giving some practical illustrations of value, and our agricultural colleges are beginning to consider this subject. A department of poultry industry has already been established in the Rhode Island Agricultural College. To be successful in any calling in this age a young man needs all the practical education he can get, and especially with artificial incubating and brooding. In my experience the past twelve years I consider it a good average if I get one-half the number of good, strong chicks of the total eggs placed in my machines. I average about the same when I had twenty-five or more hens setting at one time. The loss by infertile eggs is from 25 to 40 per cent in winter, and 10 to 15 in spring months. I consider the incubator and brooder necessary aids to the extensive poultry man or broiler raiser. But for the average farmer or amateur fancier I would advise them to stick by the old hen, as what little chicks she does hatch will be strong and healthy if you do not get them hatched quite so early. Many incubator chicks are brought into the world in such a condition that by no power, either by artificial or natural methods can be made to live over ten or fifteen days. I have seen many hard earned dollars worth planted by dozens, day after day and the business given up in disgust. On the other hand I have raised hundreds of strong healthy birds artificially, many of them being high scoring prize winners; and others have done as well; but in my opinion it takes a firstclass machine, in prompt and careful hands to obtain these results, one must give constant attention to small details. A young man in this business must be up early these cold days and attend to the warm morning mash, rather than being up late making evening mashes. Right here let me say, I believe if the boys and girls on the farm, could be given a chance with the poultry, the problem, how to keep the boys on the farm would be solved. Let them keep an account with the poultry, and have the profits for their own and they will soon take a real interest in their work and secure some of the improved breeds.

Poultry raising seems also to be especially adapted to the ladies, as far as my observation goes, the men who are the most successful with the fowls, have a daughter or wife at home, to whom the largest share of the credit should be given. I am glad to see many of the ladies now advertising and exhibiting their birds in their own name. You have one here in Boone county that came over to the last Rockford show and made almost a clean sweep on her specialty; another lady from Elgin did well. We have had a number of lady exhibitors the past few years and the unanimous expression has been—may their numbers increase many times each year. I am asked, "Which is the best breed?" For a general purpose fowl I place the White Wyandotte first, the Plymouth Rock second. Many large poultry farms in the east are keeping the White Wyandotte exclusively, supplanting in many cases the Plymouth Rocks, which for ten years have been the general favorite. The Wyandottes mature a month earlier, have more breast meat, in fact, are fat, plump, and ready for the table any time after twelve weeks of age, when they should weight at least three pounds, and with good care will gain a pound per month, up to six or seven months of age. Pullets often begin to lay in five months, and the hens have with me, been the best winter layers I ever kept. Mr. Boyer, the well-known writer and broiler man says, "he has cleared

\$2.10 per head from January to July, on his White Wyandottes as layers." At the recent exhibition of Northern Illinois Poultry Association at Rockford, in the dressed poultry exhibit, the White Wyandotte's were awarded first prize, Light Brahmas and Plymouth Rock competing. This by unanimous opinion of the two expert judges. The American Agriculturist says: "All varieties of Wyandottes are of great practical worth, but the white variety is accepted everywhere as being the practical fowl par excellence. It is being adopted by the great market poultry men more universally than any other fowl. Its white plumage makes it dress off in a very handsome shape, while its dressed shape is almost ideal for market purposes."

Under proper conditions and care, where eggs the year round are especially desired, the Minorcas, or Leghorn can be made the most profitable. The Minorcas standing first, being one to two pounds heavier and laying eggs one-third larger and proving just as hardy and prolific. These varieties require warm winter quarters and good care to obtain the best results, but the Rose-combed varieties are a great improvement for this climate. I believe in pure bred stock, as they have been bred for certain qualities and you can depend more on the progeny for definite results, than from cross bred fowls. If for any reason you can not keep all pure bred fowls, do not be satisfied with anything less than pure bred male birds.

Using Wyandottes or Plymouth Rock males with grade hens, alternating each year with Minorcas or Leghorns, will produce a useful fowl, but is not nearly as satisfactory as a straight thoroughbred. There are many other varieties of value, that have proved profitable, in fact almost any of the great number of breeds now before the public, can be made a success in the hands of a true admirer of our feathered pets.

In buying fowls do not be carried away with the extravagant advertiser, with his mammoth catalogue and extensive exhibitor who shows thirty to forty varieties at the fairs, wins many prizes on birds bought for show purposes—sometimes even borrowed. Often when you buy of these people in "theory" you buy birds of the same stock as the prize winners, when in fact they are no relation whatever, but from stock bought anywhere to fill the order. My experience has taught me to buy of true breeders who make a specialty of but few varieties and who exhibit and sell birds of their own raising. If you can go to the breeders yard and select your fowls all the better. In making up a breeding yard better results will be obtained, if your birds are of an established strain. Fowls well bred, not show birds themselves, will often produce better stock, than high scoring individual specimens, of no pedigree. Look to vigor of constitution and not to feathers only. I believe in thoroughbred stock, bred first, for health and utility, second, for beauty. There would be fewer disappointments and failures with fancy stock if these ideas were carried out by all breeders. The male has the greatest influence on comb and plumage, yet one as near the standard requirements as you can afford, mate with mature hens or pullets and you should get a fair share of show birds.

This paper would be incomplete did I not mention a branch of Poultry Culture that has assumed large proportions in the East, viz.: Duck raising. Many large farms are in successful operation, turning off annually from 5 000 to 15,000 ducklings each, mainly for the large city market.

Ducks are reared with profit without a stream or pond of water, but in my experience of several years I found with water the breeding stock layed much better and their eggs hatched a much larger per cent than from dry land ducks. I believe the Lord made a duck's foot for water and do not believe they attain their highest degree of perfection as breeders or exhibition bird without natural surroundings. In popularity for market purposes the Pekins far outnumber all other varieties combined. Just now a new variety is claiming attention as constant egg producers, viz.: the "Indian Runner." They claim a place in the duck family where the Leghorn stands among chickens. Their claims have not yet been proven by the general public. A neighbor of mine purchased a pair of these ducks last fall; the duck commenced to lay in January and has already laid eight or ten eggs—a pretty good start for this time of year. As with chickens some people made a large profit with ducks on a small scale.

Turkeys and geese can be made quite profitable under proper care and with the right surroundings.

The successful poultry fancier must have a love for his work, study the nature of his fowls and their desires. Then supply those wants as nearly as possible, and the birds will respond liberally.

Poultry raising, as a business, offers excellent inducements to progressive farmers. One who makes a small stock successful, can, by following out the same plan on an extended scale, branch out and be able to handle with profit a modern poultry farm.

DAIRY DEPARTMENT.

GOOD BUTTER AND HOW MADE.

By Grace C. Clark, Jeffersonville: read at Williamson County Institute.

There is always a market for fancy grades of any product; always buyers for the best. The market is never overstocked and the prices are always highest for the article that is better than anything else in its line.

Anybody can make butter of some sort; not every one the best. That is why prices range from 50 cents to 75 cents per pound in large cities, as New York, Philadelphia, Chicago and so on.

Mr. Boyd, of Elmhurst, near Chicago, gets \$1 a pound for his butter the year around. Mr. Darling, of Philadelphia, the same. Now, that must be good butter to warrant that price. Of course lots of good butter has been made by the good old process, using the springhouse, crocks or pans, perforated skimmer and perpendicular churn with its arm-wearing dasher. All these had their use in their day, but in these advanced days of various inventions and improvements, we should try and drop from our grandmother's way of work and keep in pace with the world at large, with at least some of the new inventions whereby our work is accomplished with much more ease and a great deal less time.

No one now days, who pretends to make butter, should be without either a creamer separator or a tank, where deep setting of cans, containing the milk, can be used, and plenty of cold water to insure all the cream of raising, either in the can system or creamer.

The first cost is what keeps so many from using these improved methods; but there it ends, you might say, and in a short time it will save enough cream to pay for itself. Crocks should be the thing of the past, very few using them for milk and depending upon setting it to raise in the cellar, can make butter in summer. If it is made it is of an inferior article. To make good butter commences with the cow. She should be fed and fed well—such food as would yield good flavored milk. No trash, just because she will eat it, for it will surely taint the milk, which will produce a poor flavored butter. Then she should be milked in a clean stable and be sure to brush all loose dirt from the udder before commencing to milk. The pail comes next. It should be one used for that purpose only, not one that has been used the whole day for all other purposes making it unfit for milk. The milk should not stand after being drawn from the cow any longer than it takes time to get to the milk room or house and strained. If it is to be separated, it is then the right temperature to do it, after which the cream should be cooled to a temperature of 60 degrees, then placed away in a clean, cool place to ripen.

In summer we need no artificial ripener, but in winter it is essential, as cream if left long enough to ripen itself loses its good flavor. Either use a sour milk ripener or rennet to ripen it. The cream should be raised to 70

degrees and the ripener stirred through it. After standing twenty-four hours it is ready to churn, and here let me say a thermometer is as essential in a dairy as the churn. The cost of a dairy thermometer is but 25 cents, but its actual value is beyond comprehension.

I have often heard people say they can determine the heat or cold near enough by their hand placed on the outside of the cream jar or sticking a finger in the cream. I don't believe any one could come within 18 or 20 degrees of the right temperature that way, and besides it is a very unclean practice, so don't do it. When you are ready to churn, scald the churn, then rinse out with cold water. The cream should be at a temperature of 60 degrees in common cows. If Jerseys, 64 degrees will not be too high, and the butter will still come in granular form and granular butter is the right kind to have.

Churn exactly as usual, but stop when the glass on the lid of the churn begins to look as though it was clearing. I am now supposing you are using a barrel churn, which always has a small glass on top to show when it comes. Open the cover and there is your butter in small particles about like peas. The old-fashioned way was to churn until the butter would hold up the dasher, then it is beyond the granular stage massed in one lump. Let the churn stand for a minute or two, until the butter raises to the top of the buttermilk; run off the milk in a pail or some suitable utensil, then wash the butter in *eco*, clean water, about 60 degrees, by pouring a pailful in the churn. Swing the churn around several times, draw off the water and so proceed at least twice. Some say wash until the water is clear, but others think it washes away the fine flavor, but wash until all the milk is out.

Having previously scalded the butter bowl and ladle, now cool it off, then take out the butter from the churn, weigh it, and allow one ounce of salt to a pound of butter. That is the rule but some prefer more, others less; sprinkle in the salt a little at a time. If the salt should happen to be lumpy, as it often is, it should be rolled or sieved to free it from them. Work it thoroughly through it until you have all the salt in. To properly work a batch of butter requires considerable skill, if insufficiently done the butter will be streaky, crumbly, and contain an undue proportion of water. If overworked it will salvey, devoid of grain, and fitter for the grease pot than the table. To determine the proper time to cease working it, requires experience and thorough knowledge of the quality of good butter. Judging from the majority of the butter seen in the stores of today, one can safely assume that there is a great deal of ignorance among farm butter makers on this point, for surely no woman who cared at all for the reputation as a butter maker, would ever put such butter upon the market if she knew how to make it any better. The custom of reworking butter is almost universally in vogue with farmers' wives, they know little of the method of working it once, and only once, as practiced by modern up-to-date butter-makers. Yet, the new way is so much easier and better in every way that it seems that it had only to be known to be at once accepted. In my own dairy work I do not remember ever to have re-worked my butter. Try it once, and see how much time you save, if nothing more.

Pack it neatly in what ever way you are accustomed to sell it, either in prints or jars, cover with parchment paper or clean cheese cloth and see if it don't look more presentable than wrapped in any old cloth handy.

I have tried to give my method of butter making in as few words as possible, and still make it plain to the hearer, and in conclusion would say: cleanliness in all things is essential, and let me tell you—if you wish to make good butter don't let the milk stand in crocks until hairs grow on it; don't skim it with your fingers because they are the handiest; use a knife to scrape down the edges; don't use your fingers for a thermometer; don't work with the hands in place of a ladle, and don't leave the buttermilk in the churn until churning-time comes again.

Wash thoroughly and scald all articles used in the dairy as soon as the butter is cared for, and last but not least: don't wrap in some cast-off garment to bring to the store, and see if you don't get better returns for your trouble.

THE CREAM SEPARATOR.

By Wm. Dittmann, Marshall, Ill.

Before starting out on my subject, I feel obliged to make myself known to you, because every word which I may speak will betray me my foreign nationality. I will not and do not say that I am ashamed of being born and reared in Deutschland, which country you call Germany. There is no just reason for denying or despising my mother country. Deutschland is a great country. Its people are an educated people and I am not ashamed of the fact I came from among them; but I am proud, justly proud, of the fact that I am now a United States citizen—a citizen not by birth, or by mere chance only, by choice—my own free choice. I am proud that I can call myself one of you; that I am a citizen of the greatest nation on earth—the nation which is able to spend hundreds of millions of dollars, and hundreds of thousands of lives for humanity sake, as demonstrated in the civil war, and again in the last year's war with Spain.

And let me call your attention to the fact that only this people is able to subdue another enemy, the common foe of the whole civilized world.

The time will come when the public sentiment of this people will compel the National government to dissolve its partnership with the breweries and distilleries.

Bismarck, some years ago, spoke the never-to-be-forgotten words: "We Germans fear God, and no one else." But I say, the people of this nation can more justly call themselves a God-fearing people, because God's name is not only honored in churches, but also in a gathering like this; yes, and even in political meetings we hear the name of our Creator called upon very frequently.

Now, after I have proved myself to be one of you, and as I like to learn of you, and to profit by your experience, I find myself obliged to give my experience in a certain line of farming.

If it is true that "man is what he eats," and who can say it is not true? Our physical well-being depends very largely on the food we eat; and, as our spiritual being is dependent on our physical man through counter action, "man is what he eats." This being a fact, we ought to be very careful about what we do eat, and, as producers of food for market, we farmers ought to strive to be able to present to our fellow man, only pure, clean and wholesome food.

I am especially referring to butter making, because this is the most neglected thing on the farm. In all other branches of farming, we use the most improved machinery; but the skimming of milk is done the same way, it was hundreds of years ago, notwithstanding the heavy loss we suffer thereby.

It has been demonstrated that that loss amounts to from 20 to 30 per cent, according to circumstances and temperature; that means, that from $1\frac{1}{2}$ to $2\frac{1}{2}$ of the cream is left in the skimmed milk. Now, some one may suggest that this is not altogether a loss because the stock get it. But you must know that the food value lies in the skim milk. Cream is a fatty substance, and creates only heat in the body, while the milk makes muscle, bone and meat. This has been demonstrated by careful experiments.

Setting the milk in crocks and skimming it by hand, is a greater work than it looks to be at first sight. Washing and airing the crocks, and keeping them sweet for receiving the new milk, then taking it away to the proper place, takes many a step on the side of the overburdened farmers' wife, and then, after all comes the drudgery of churning. Milk skimmed by hand will never yield an even, uniform cream. Some will be too sour, some sweet, and such a mixture will never easily churn, and what little butter it will make, is of inferior quality.

During the hot season, there is much work and very little pay, and during winter it is not much better. Most of the farmers have to keep their milk in the kitchen, and sometimes, even in the sleeping rooms and milk kept in such places, absorbing impure air and bad odors, will never be fit to make good butter. (Explanation.)

Just about two years ago my nephew from Terre Haute was with us. He is a drummer for a wholesale house over there and travels on the Vandalia railroad. He is out every day in the week except Sunday, and eats his meals every day in another place. At the dinner table I asked him if he ever saw or ate any oleomargarine. He said: "Why, yes I did." Then I asked: "Does it taste any like real butter?" He said: "It is better than most dairy butter we are getting in the country towns. It always has the same sweet taste, while dairy butter is very often sour and bitter, having no color nor flavor at all." Since that time I have heard the same statement made by two other men. Now, if this is true, and I have no right to question the words of these three men, it seems to me the time has come when we ought to stand up and help ourselves rather than ask the Legislature to prohibit the manufacturing of oleomargarine.

"Help yourself and God will help you," is a wise and true saying.

If we would put on the market only a pure, first-class product we would see a great reduction in the sale of oleomargarine. There are some people, it is true, who eat most anything, only so it is cheap.

But it is also true that there are many who are willing to pay a little more for a good product.

The time is at hand when the farmer as well as the merchant must make and save out of his work and expense as much as possible and waste as little as possible, and this can be done with the help of machinery. This machinery is, of course, at the start a big outlay, but it will pay for itself in a short time; especially is this true with the cream separator, because, while other farm machinery is used only a short time in the season, is this machine used twice every day in the year, and therefore has a better chance to pay for itself than any other one. I am using one on my place since April last and am very well pleased with its work and also well repaid for my outlay in money. I would not do without it if I had to pay twice as much for it.

With this machine the milk is separated right after milking, that making it very easy to take care of the cream. After it is cooled down to about 60 degrees it can be covered and put in a proper place. During summer we hang it in the well and in winter we keep it in the room till ready for churning.

This way cream can more easily be kept at the proper temperature, and can be made more evenly ripe than in any other way, and this is of great importance in butter making.

The warm, sweet skim milk can be fed to stock before it gets cold or sour and this is worth more than some are willing to admit. The claim that this machine saves from one-fifth to one-half of the butter fat I find to be very true.

I am keeping account in this line of work, and comparing the records of the two last years I find that it did more than justify me to buy and operate such a machine.

We are getting one gallon of cream out of five gallons of milk, and this gallon of cream makes two pounds of butter; that means one pound of butter from two and a half gallons of milk. Some of you may be able to do better than that. This machine does not make cream, it simply separates the cream from the milk.

Those among us who keep full Jersey stock can undoubtedly beat my record. But there are others with common cows that can not come up to this standard without the help of a separator.

Now some one might suggest that under the present circumstance, butter being so low and the price of calves high, it does not pay to be bothered with butter making. I was told not long ago that some one sold several spring calves for \$25 a head that were allowed to run with the cows all summer. Now do you expect me to say that that was a lie? Never will I do so. I know that it can be done, but not with all breeds. We must not forget that whenever we hear such a report that the heavy beef bred cattle are meant, such as Short Horn, Polled Angus and Hereford. But if a calf is al-

lowed to run with the cow for four or five months that cow, as a rule, is not much good for milk for the rest of the season, and if a farmer is keeping a cow for a whole year just to raise a calf from her, and if he even gets \$25 for it, I can't see much profit in it. I want my cows to bring me more than that.

My calves, after a week old, are fed with skim milk, to which oil cake meal is added, and I believe that they do as well as other farmers' calves, according to the size of the cows.

Some one might ask: "Will it pay to buy a separator for two or three cows?" To that I will say, it pays a man to have one even if he has no cow at all. "That's funny, you might say, and yet this is done, not in one or two cases, but in dozens of houses of rich people in big cities who never owned a cow and never will.

They buy their milk from a dairy man, separate it just for their own use, make their own butter, use cream and milk on their table, and do all this work just for the purity sake; this way they know what they are eating.

Are we and our children not as good as the rich people in the big city? Should not we have for our own use the very purest food and drink?

Perhaps not many of you have ever seen the refuse in the separator bowl after operating same. That ugly, slimy stuff would take many a person's appetite for butter and milk if she or he could see it, and this stuff, not fit for hogs, is to be consumed by the human family under the old time process of setting the milk in crocks and skimming by hand. Does it pay to have one of these machines? you will ask. Why, you can figure that out for yourself. The loss in cream is not less than one fifth, but most of the time more. During hot weather it runs up to one half, by setting your milk in crocks and skimming it by hand, and not only this to be considered, but also the superior quality of your product when handled through a separator, and also the keeping quality.

Butter made out of separator cream, purified and all refuse taken out by this machine, properly made and properly packed away, will keep four to six months fresh and sweet, and would therefore enable anyone to keep the fine June butter, with fine color and flavor, for a better market price through fall or winter. The immense output of butter during the first summer months, goes largely into the storerooms of merchants in big cities. There it is kept and held for better prices.

Could not we do that ourselves, and by doing so control the market?

To this, some one may say, I packed and held butter once, and I will never do it again, for I lost it all. I take it for granted that we all agree that there are two ways to do one and the same thing, one is the proper way and the other is the improper way. A moment ago I said, butter *properly* made and put away. This means something more than only a mere phraseology; I would never advise anyone to pack and hold butter made under the common process of setting the milk, but I can and I will tell you how butter made out of separator cream will keep. First—See to it that your butter be free from milk and water. Second—Salt it evenly and thoroughly. Third—Have a stone jar ready, clean and sweet; line this jar with paraffine paper, because earthenware is porous and therefore permits the air to go through its walls, then put your butter in it, press firmly down, so that no hollow place may be left; do all this right after churning so that the air can not work much on the butter, then put about two inches of a strong salt brine on top of it. This will keep all the air out. If you can't make the jar full at one time, remove your brine when ready to put in another lot, but never permit the butter to be left without it, any length of time.

Then when your jar is full, that is, with the exception of two or three inches, which place is used for the brine, take it to a dry, cool place till wanted.

In connection with this I would like to make another suggestion:

Those farmers living a good distance from town, having not much of a market, only at the grocery where they can exchange their produce, could com-

bine themselves and send their butter to a business house in the nearest city, and thus save the commission which the middleman always takes, and secure a first-class price, which butter, made out of separator cream, will bring in any market. I say that this could be done if properly managed.

This could be called a business-like method. We know that as soon as the manufacturer finds that one article he is making is not wanted in the market, he uses his time and force in making something else, and does not force his goods into the market if there is no demand for them. From him, we farmers could learn many lessons. To this some one may say that, the farmers' produce is of a perishable nature and can not be kept like merchandise.

This is true with many things but not so with butter, as I have told you, and as you can convince yourself by a proper trial.

I have been told by a friend and neighbor of mine, you ought not to advertise this matter so much, because if everyone would go into the dairy business, butter would get cheaper yet. But you must understand that I do not advocate the enlarging of the farm dairy, only I say that we ought to use every means to make it as profitable as possible, and to improve our products in quality and quantity, for our own use as well as for market, and thereby better our own condition and the same of the consumer as well.

Very often the milk is used of cows which are affected with tuberculosis, because a cow may be diseased with it and may not show it in her outer appearance for some length of time. But the milk of this cow, put under the microscope, will show the disease germs in a great measure, and yet after it is run through a separator, it will be free from it altogether.

Where does so much consumption in young people come from? Has not the food they consume something to do with it, especially milk and milk products?

In a few words I will now repeat what a separator will do :

1. It takes all the cream out of the milk when yet in its natural warmth, and therefore does, secondly, enable a man to feed the skimmed milk in its most favorable condition to his stock.

3. By taking all impurity out of the milk, it renders the milk as well as the cream, and butter made out of same, a perfectly healthy food for the human family and for live stock.

4. It raises the keeping quality of butter to a very high degree.

5. It reduces the work of the farm dairy in a very great measure.

6. Butter made out of separator cream commands the highest market price everywhere.

7. The cost of a milkhouse can be saved, the erection of such a one coming higher than the price of a separator.

MISTAKES IN THE DAIRY.

By H. B. Gurler, DeKalb, Illinois.

Many of us are so constituted (unfortunately) that it is a source of satisfaction to talk to others of their mistakes. At the same time we dislike to talk about our own.

In what I shall say to you this afternoon nearly all the mistakes I shall talk about I have made myself during some part of my experience in farming. I believe we can profitably talk about our mistakes. Opportunities are more interesting to talk about than mistakes, though they may not be as profitable.

Our mistakes are cold facts. Our opportunities may and usually do have some theories and considerable anticipation woven into them.

It is a mistake to keep a dairy that will not make an average of 300 pounds of butter per cow annually. 250 pounds should be the individual danger line. The cow that does not reach that point should be made to serve us in a line that she is evidently better fitted for, namely, beef.

I believe \$35.00 to be a fair estimate of the cost of feeding a cow a year. Now she must produce 220 pounds of butter to pay for this. When intelligently fed to calves and pigs the skim milk will pay for the labor, or if labor is not taken into consideration we may deduct its value from the cost of food. The skim milk from a cow that produces 300 pounds of butter is worth \$10.00. The average cow that reaches the 300 pounds mark will produce 6,600 pounds of milk, containing four per cent fat. There will be 600 pounds of skim milk, which at sixteen and two-thirds cents per 100 pounds, will amount to \$10.00. Deducting \$10.00 from the cost of keeping, we have \$25.00 left. The average price of butter for 1898 at Elgin, was a small fraction of a cent under 19 cents. We will deduct three cents per pound for making and we have 16 cents per pound net. It will require 156 pounds of butter at 16 cents per pound to equal the \$25.00 balance against the cow for feed, or in other words it requires 156 pounds of butter and the skim milk to pay for the food. It will take 75 pounds more butter to pay for the labor. This added to the 156 pounds makes 331 pounds. I believe this is a fair business basis.

Now I know it is entirely practicable to have our dairies produce 300 pounds of butter. Many dairymen have done as well and many have done better.

The Illinois Experiment Station selected a dairy in that vicinity that produced 300 pounds per cow for the year's work and that is not a dairy section.

The 300 pound cow leaves us 70 pounds for profit, which at 16 cents per pound is \$11.20. A 350 pound cow leaves 120 pounds for profit, or \$19.20, and the 400 pound cow leaves 170 pounds for profit, or \$27.20; a 475 pound cow would make a profit of \$41.00. There are cows that are making that amount. I have had grade cows pass the 500 pound mark.

I believe if we will set the boys to work testing the cows—giving them half that they can increase the butter production of the dairy as their pay—that we will make something ourselves, the boys will make something and they will learn to respect the business and want to stay on the farm.

When we apply the trained thought and business sense to the farm that the manufacturer does today—it will pay, and we are going to give more and more thought to our various lines of work on our farms.

It is a serious mistake not to provide a palatable food for our cows. To secure this we must harvest our crops at the proper time—when they contain the most digestible nutriment. The palatability of food attracts my attention more frequently than any other in the management of my dairy. When the cows do not like their food they will not consume as much as they should and our profit is immediately reduced. Corn is the king of crops and clover is queen. These crops succeed each other most admirably in growing. A clover sod will produce ten or more bushels of corn per acre more than a timothy sod. This extra ten bushels of corn is clear gain and it may represent all the profit there is in growing the crop. Our queen of crops clover—adjusts herself to the king—corn—more perfectly, if possible, in feeding than she does in growing. Corn is a highly carbonaceous or fat forming food and clover is a nitrogeneous food, and the best results are obtained when we feed a properly balanced food. Clover balances corn to perfection. Our soil produces both of these crops successfully and profitably. Many of us make the mistake of letting our clover become too mature before we cut it. It should be cut when in full blossom.

It is a mistake to feed any kind of unsound food. Mouldy hay, or corn fodder, or ground feed, decayed ensilage—all will cause trouble with the milk. I am confident that the greatest stumbling block with the silo has been from having too much surface exposed for the number of cattle being fed from it. Eight feet of surface per cow fed is the limit or danger line. Ensilage is a moist food and will commence to decay when exposed a sufficient time and we must feed fast enough to keep ahead of decay. Six surface feet per cow is sufficient to have exposed in the silo. With this amount of exposure, and reasonable care, there will be no trouble from decayed ensilage. To illustrate this point, we will suppose a dairy had 40 cows, six surface feet per cow would make 240 feet or a space of 15x16 feet—in other words, 15x16 feet area is as much as should be exposed when feeding 40 cows. If a round silo is

used (and the round one is preferable) 18 feet in diameter should be the limit for 40 cows. My latest silos are built circular and are plastered with Portland cement inside. They cost me to build \$1.50 per ton of contents. They are 20 feet in diameter and 38 feet deep.

Don't allow the cows to drink stagnant or impure water. It will affect the milk. I am confident it pays to warm the water in cold weather.

I formerly confined my cows in stanchions. I do not any more. I use the Bidwell and Drown stall, in which the cows are not tied but held in a stall by a chain or rope across the rear. In these stalls the cows are lined up on the gutter and keep clean. They are much more comfortable than when in stanchions. The front of the stall is adjustable to the length of the cow so she can be easily kept lined up on the gutter or drop. I use a continuous cement manger—the adjustable stall front hanging above the manger.

It is a mistake to be irregular about the hours of feeding or of milking as it causes the cows to become restless and uneasy for which neglect we pay—commencing at the next milking. When cows are allowed to shrink in their milk it is next to impossible to get them back to their former flow. It can only be accomplished by better care or better feeding than they received previous to the time they were neglected and allowed to shrink in their milk flow, and in case they are brought back by better care or better feeding it is simply proof that we were not doing as well as we might have done previously—not doing as well as we knew how.

Never feed ensilage so that it is in the mangers at milking time. It is best to feed it after milking, and then there is no danger of the milk absorbing the odors from the ensilage.

The danger there is of milk absorbing odors is very poorly understood. I have known milk to bring the odor of the hog pen to market with it and I was able to detect it and have the trouble corrected. If any one wishes a demonstration along this line I advise them to set an open vessel of milk in some filthy place, allowing it to remain in that atmosphere about two hours. Then warm it to a temperature of 120 degrees Fahrenheit and try what your nose will find in it. I knew of a case in Vermont where a skunk had been disturbed in the vicinity of the milk room. Butter was made from this milk and sent to Boston to a commission house where the skunk was detected in the butter.

I am positive it is a serious mistake not to raise the heifer calves from our best cows. Here is where one of the benefits come from knowing each cow individually. The record of a cow's and of her ancestors work as milk and butter producers is just as valuable, yes, more valuable, than a record as a beef producer. We do not buy any other farm stock for breeders without looking up their ancestry, and the time is at hand when the record of dairy animals and their ancestors is looked very carefully after. We probably shall not be so anxious to trace every animal to its imported ancestors as we have been in the past, as we are awaking to the fact that we have improved on the original stock to that point that we now have in many cases better stock than that from which it descended, if not better than the stock of the countries from which we have imported in the past.

By this process of breeding from the best—from such as are profitable for a few generations—we can increase the profit to a surprising degree.

Dairy calves should be raised on skim milk, in fact I think all calves should be. I am positive we will secure the best cows from calves raised on skim milk. It will require more care and better judgment than when they are allowed to run with their dams. The calves must have this skim milk sweet—it must be as warm as the mother's milk (or 100 degrees Fahrenheit), and they must not be fed too much. There are many calves injured by being fed too much skim milk when one is not fed enough. Most of us understand the necessity for the young calf having the first milk from its mother. The calves can be worked gradually onto the skim milk, making it their entire food by the time they are from two to three weeks of age. Four quarts of skim milk twice per day is sufficient for the first month. Use flax meal to take the place of the cream.

We can not afford to keep poor milkers. I have found a difference between my best and poorest milkers sufficient to pay a milker's salary when he milked 15 cows. Some men can not milk well if they try, but there are more that do not try. When the cows have fallen off in their milk it is less labor to milk them. I have given prizes to my milkers and secured very good results.

We can not afford to have the cows unkindly treated. I get suspicious of a man when I discover that the cows are afraid of him. Remember that a cow is hurt or frightened when she kicks. Not one cow in a thousand kicks from ugliness and this one I will guarantee has had the ugliness cultivated and developed in her by some ugly attendant. The cow is not to blame. I think a man that is ugly to cows should be compelled to fight it out with the male of the bovine family. Let him vent his ugliness on something of his own sex that is or soon will be as ugly as himself. I have seen cases when I would really enjoy an entertainment of this kind. The result of rough treatment I can not better illustrate than by quoting from "The Dairy," published in London, England.

The cost of noise in the dairy can be figured to a certainty; and the man who doubts this can gain some valuable information by making a few experiments on his own account. A neighbor of mine has been doing this and the result is decidedly startling. This man has a dairy of about 20 cows, mostly Jerseys. A quiet man by nature, his cows were accustomed to receive only the kindest treatment. A few years ago this neighbor bought a milk tester for use in his dairy. One day he directed the hired man to shut the cows in the yard and to let the dog in with them. The hired man thought his employer must be going daft, but he obeyed instructions. The two men took sticks in their hands and went into the yard with the cows and began to shout; the dog barked, and pandemonium reigned for a few minutes, although not a blow was struck nor a cow bitten. The herd was then brought into the barn and milked.

The falling off in yield was quite noticeable, but the test, when applied, showed a loss of 40 per cent in butter fat on the basis of the week previous. Think of that, ye men who shout, kick, thump and bang your cows, and permit the hired help to do the same. Suppose these cows gave at a milking 300 pounds of 5 per cent milk when treated kindly. The loss in weight, placed a low figure, must have been at least 5 per cent of 15 pounds. While the loss in butter fat, 40 per cent, would bring the test down to three per cent."

Many dairy writers advocate feeding a grain ration when cows are on full feed of grass. I believe this would pay at the time but I do not believe it would pay to feed a profitable cow in this way—one that we wish to keep in the herd for the double reason of her profitable work, and for her offspring.

A cow should have no grain feed during the time she is not giving milk, or previous to parturition, as it gets her system in a condition to cause milk fever. Feed her all she wants of some succulent or nutritious coarse food. A plenty of grass or ensilage is the best food at this time.

Cow stables should be well ventilated and well lighted. An English authority claims that cows will produce 50 cents each per week more in stables kept at a temperature of 63 degrees than when kept at 52 degrees. Many of us Americans will not believe this but we must remember that a cow that is giving milk is much more susceptible to cold than a fat steer. My belief is that we can use artificial heat to advantage when we use it for the double purpose of securing warmth and aiding ventilation. I think here is a field for our experiment stations to work in. Who knows what is the temperature that gives best results in our cow stables?

As we have been talking of our mistakes, we have been looking backwards. Now let us change front and look forward, trying to see what opportunities there are as farmers and dairymen to do a more intelligent and profitable work. This will be largely a review on a different view of the same field. I am sure we have great opportunities along the following lines:

Applying the individual test to our cows and weeding out the unprofitable ones.

More intelligent work in crop growing.

Grow 100 bushels of corn per acre. Some have done this and more can do it. I tried and failed, but consider my failure a success as I produced 96 bushels per acre.

Grow more clover. Grow it for hay, for pasture. Grow it to fertilize our land and fit it to produce 100 bushels of corn per acre. Remember that Queen Clover is the running mate of King Corn, and that while she is small in growth in comparison with King Corn, she produces nearly as much per acre of the most valuable nutritive element (nitrogen) as King Corn, and when we take into consideration the nitrogen secured in the crop, and what she has stored in the soil for her lord and master, King Corn. I am sometimes nearly persuaded that the queen is of more service to us than the king. She is much under estimated, without doubt.

Study the feeding problem—how to prepare a properly balanced ration.

Send to University of Minnesota for their bulletin on feeding cows, by T. L. Hoecker. Address, St. Anthony Park.

Study the question of palatability of stock food. This will pay you well.

Supply pure water. Fence the stock away from the stagnant and impure water.

Provide a plenty of light and fresh air for the stables. If you have no system of ventilation—put in one. It need not be expensive.

Demand and secure a high grade of work from your milkers. Discharge a man that persists in being unkind to the cows.

Secure a pure atmosphere about milk, cream and butter.

Establish a business-like system about all the work.

Feed ensilage after milking.

Don't have the hog pen too near the cows as its aroma at times is alarming.

Raise the heifer calves from the cows that produce 390 to 500 pounds of butter annually.

Don't forget that a better dairy calf can be grown on skim milk than on whole milk, and at much less cost.

Remember that the greatest cause of scours in young calves is over-feeding, and that boiled milk will check it if taken in time.

When we are weeding out the unprofitable cows let us do the same to the milkers.

Remember, it pays to treat a cow like a lady.

Get rid of the cows that can not be cured of kicking, as they contaminate the whole stable, both cows and milkers.

APIARY DEPARTMENT.

BEE KEEPING.

By G. H. Schackmann, Newton.

Bee keeping in Jasper county is one of the industries that has been neglected for the past ten or twenty years. It was about that many years ago when it became necessary, in order to make bee keeping profitable, that we changed our methods of keeping and caring for bees. It was also about that time that the patent bee-hive men saw a grand opening for their business, and from that time until the present the county has been canvassed by men selling the so-called patent bee-hives. These men told the people that the old bee-gum was a failure and that the successful way of keeping bees was to put them in a patent bee-hive. Through the smooth talk of these unscrupulous men a great many of our honorable citizens were humbugged out of from five to eight dollars for a single hive, which proved to be a failure. By such means the interest in bee keeping met with a material and almost a fatal set-back.

It is not the fault of the bee that we can drive over our country and stop at twenty-five farm houses and not even find a single pound of honey. There are thousands of pounds of honey evaporated throughout the county annually which we could just as well have and enjoy its luxuries on our tables, by using the proper methods, which are pointed out to us by scientific men on apiculture. In proof of this I offer a report of our own experiments made last year, which is as follows:

On March 1, 1898, we had eleven colonies of bees in the Simplicity hive, which hive and bees cost us \$2.70 per colony, making a total cost of \$29.70 invested in bees. We used in stimulating them before the honey flow began in the spring, syrup amounting to \$3.35, making a total investment of \$33.05.

On October 1, 1898, we had thirteen colonies of bees at \$2.70 each, making \$35.10. During the honey season we harvested from these colonies 448 pounds of saleable honey, worth 14 cents per pound, making \$62.72, a total of \$97.82. Deducting our spring account, or first investment of \$33.05, leaves us with a net profit for the season of \$64.77, and have thirteen colonies clear to begin with next spring.

Being a beginner in the bee business, I do not feel competent in the least of doing the subject justice and for more reliable information would respectfully refer you to the report of the Illinois Farmers' Institute, Vol. 2, of 1897, Dr. C. C. Miller, page 89; also Vol. 3, of 1898, by J. A. Green, page 299.

BEE KEEPING.

By Thomas J. Stanley, Fairfield, Ill.

MR. PRESIDENT, LADIES AND GENTLEMEN:—In the short time that you would care to listen I could not do justice to the whole subject that has been assigned to me, and will confine my paper to that part of it appropriate to fall and winter care of bees.

Preparations for winter should all have been made by this time, but if there are some here who have not done so and wish to adopt some of my suggestions, they may yet do so by watching for a suitable day, of which you had better embrace the first, for they will be few from now on and far between.

It would be well to make a note of this fact, that the pleasure and success of bee-keeping lies in a wise choice of suitable weather to handle them.

Fall work, I would say, commences in this locality about the middle of September. After the flowers of late summer have yielded up their sweets, (in this climate and locality they are Spanish Needle, and Farewell to Summer, or White Blossom) allow plenty of time for your bees to finish up and cap over as much as possible in your supers. Then choose a calm, warm day; the mercury should not be below 70 degrees; 75 or 80 degrees is better; fire up your smoker; be sure it is burning good and will not fail you right when you want it most, for if it does the consequences may be pointed and unpleasant. You should also wear a face veil, one made of mosquito bar with a draw string at the top so that you can draw it up snug around the crown of your hat, made about 22 inches long so as to hang down and cover all around as low as your first or second vest button, then if you have a vest on these hard times, button the veil right in with the top button, or if in your shirt sleeves, reach under your suspenders and draw the slack out of each side of the veil under them, and you are tolerably safe on such a day as I have recommended for the work.

But if it is cool and windy Mrs. Bee will crawl around over you at will, occasionally inserting her sting when she gets close enough to the skin; she is looking for a warm place. I have had a good handful between my shoulders after a few hours work on such a day.

But after all, considering the number of bees, they did not sting me often; they are very patient, long suffering little fellows; perhaps would get no more than one or two stings at the time, but you never know when you are entirely rid of them; if you are nervous and finicky you will simply feel bees in every fold of your garments. I have had them sting me after going to bed, notwithstanding the fact that I had picked myself supposedly clear with the help of my better half, time and again. This is also the experience you have if you try to work with your bees at night, which should never be done.

You have now your smoker and veil and have selected a comfortable day; raise your lids gently as possible, blowing in a little smoke as you do so; continue to smoke moderately until you can see down into your cap or super; wherever there are two or three finished sections mark the super to take it off, putting the lid back on, until you have gone through all of your cells, or rather, looked into all of them. You should previously have prepared your supers in all respects as for a honey crop, and if you have not enough to go under all the caps you have marked to take off you can probably get enough empties off your colonies that did not get into the caps, to go around; raise then all your supers that you have marked to take off and put the empties under them; let them sit this way an hour or so, when all loose honey stuck between frames, etc., will be cleared up, making the future handling of it a much nicer, cleaner job.

You are now ready to take off, which should be begun in time so that you will get through along in the evening towards time for your bees to quit flying; so manage your smoker that you will have as cool a smoke as may be, and be careful to blow no coals into the caps. If you have a red hot smoker and blow indiscriminately into your caps containing your surplus honey it will smell of smoke ever afterwards; smoked honey is pretty common and is just as easily distinguished as smoked meat, but not so good, and then it is an unmerited punishment to the bees, probably the most faithful hands you have had on the place, always ready to get up early without calling, work for you all the time and board themselves while doing it.

A good blast or two after raising the lid will suffice, then allow a little interval to give bees a chance to clear out, then a few more blasts, another interval, and so on for a few minutes, when you have all the bees out that you can get out in that way, the empty cap that you have placed under them

furnishing them a ready retreat; at any rate you are pretty certain that the queen has gone down. Lift off your cap now and carry it to a foundation previously arranged, bee tight and level, level because you may want to pile up pretty high; have a good lid, that when laid on will make your pile of supers bee tight at the top, this to prevent robbers; have enough piles to hold all your crop.

By the time you are through taking off, most of the bees in your piles of caps will have made their escape, except robbers, as you will be raising the lid every time you add a cap. Those fellows standing around your piles of caps, ready to plunge right in when half a chance offers, and bunched at every crack whether large enough to admit them or not, are robbers. Bees are, we regret to say, the rankest thieves on earth. This propensity to take everything they can lay their hands on, regardless of ownership, gives their keeper his most worry and work. What weeds are to the agriculturist, robbers are to the apiculturist. It is a pity that insects so useful should be so dishonest, yet, their usefulness depends upon their instinct. It causes them to visit and thereby fertilize our fruits and flowers. She (for the workers are all females) observes the showy blossom from afar, as her compound eyes renders her powers of observation tremendous, causing her to draw near, when the odor directs her unerringly to itself. We believe that odor is produced by nectar in the flower; some fruits, the strawberry for example, seems to secrete no nectar, therefore has but little odor, and pistilate and staminate plants have to be kept near each other, or they fail to be fruitful. Bees are sometimes blamed for eating a few partially decayed and over-ripe grapes, peaches, plums, etc., during a hot dry time in summer. Bees damage fruit only in a secondary way, as they are always preceded by other insects. or, decay; it is a physical impossibility for them to cut into anything. But their benefit to fruits is of primary importance; no insect is "in it" with bees in point of service to the horticulturist. Well posted fruit growers have no h'ing but love for their industrious helpmeets, and do not begrudge them so small a share of a crop they have been so instrumental in producing, espec ally as yellow jackets, wasps, etc., do not hesitate to appropriate a much larger share, without rendering any return whatever.

But we will return to our piles of supers, which we left with robbers buzzing around them, trying to get at the sweets within. If your supers are well made and kept tightened up, their efforts will be in vain, and in fifteen or twenty minutes they will almost have quit trying; or if there be a place where they are squeezing in, it will be so apparent that you can smoke them away and stuff in something temporarily to stop them.

Occasionally take the lids off your honey piles and let what bees that will, escape; now as you are about to take leave of your apiary for the winter, while you are waiting to subdue the robbers and work the bees out of your piles of supers, go around and heft your colonies, marking all that you think has less than fifteen pounds of honey in them, and weight the lids down secure with a brick or two, of those that you judge have enough stores for winter, seeing to it that no bottoms are left flat on the ground to rot all the winter, and that no hives are tipsy and liable to blow over, and that none are tipped back so they will hold water. (By the way, we use brick for marking our colonies when they are working in the apiary, understanding from the way they are laid the condition of all, or any of them.) Snug everything up in your apiary, and do not leave it for any length of time while your piles of honey remain in it.

It ought to be getting along in the evening now, and your bees about compelled to quit flying for the day. You can now remove the lids from your piles of honey, longer at a time, and a little later carry them into the house almost entirely free from bees. What few there are will fly against the windows, when by letting them down a little from the top they will make their escape; look after all close until all flying ceases for the day, then fix your caps all away tight and darken the room, for rest assured that the bees will be looking for them in the morning.

You are now ready to take your honey out of supers, clean and case it up, which when properly assorted will leave you quite a lot of sections only partially filled. Put these back into your supers as you would prepare them for

surplus honey ; carry them back to the apiary and put them on those colonies marked light ; weight the lids down well and your labors in the apiary are over for the winter ; unless, perhaps, you want to be extra good to your bees and desire winter protection ; in which case, if you can do it without disturbing them too much, you might put a shock of fodder over them, leaving a place, of course, for them to fly out on warm days ; provided now, that no pigs, calves, etc., are allowed to nibble at the fodder, and that it be not removed until well up in April. We think, however, that in this climate the extra fuss and features of winter protection are hardly justified by the results.

You now have your crop and are ready to market it. Of course you will keep enough for yourself and family. Do not crowd the balance on to your grocer too fast ; look around a little. If you have good clear stock, such as Spanish Needle or White Clover, it will keep indefinitely in a warm, dry place. But sell your White Blossom and Honey Dew as soon as you can reasonably do so, for it will not keep so well ; the Honey Dew will be apt to sour and run out and the White Blossom will granulate and be hard to sell in that condition.

We will say in conclusion, that if you are a careful person and in the habit of doing everything at the right time, and wish to keep bees, you can do so successfully. It makes no difference whether you are afraid of bees, or can scoop them up in your hands. Studying up on the subject will change all of your fear to admiration and enthusiasm. Bees, however, make no particular acquaintances, and have no especial favorites. Every man who treats them a certain way will receive certain results and attention. They are not vicious. Their hands are by no means against all men. That idea originated probably in the Garden of Eden, and is caused by their relations (like a good many other people's troubles). They are first cousins of Joint Snakes, which no doubt accounts for man's prejudice toward them.

I thank you for your considerate attention.

HORTICULTURAL DEPARTMENT.

INJURIOUS AND BENEFICIAL INSECTS AND HOW TO DEAL WITH THEM.

By Arthur J. Snyder, Belvidere, Illinois.

Whatever explanation of my appearance before the farmers of Boone county and their friends is needed, you will find in the beginning of my remarks.

I was born and spent my boyhood days upon the farm and I am glad of it. The first money I ever earned was by labor upon the farm; the money which paid my expenses through school was earned by teaching farmer's children; some of my happiest days were passed upon the farm and many of my best friends are farmers today. I love the farm and farm life and my heart is full of gratitude today to the Divine Providence who caused my early days to be spent far away from any city's streets and the influence of its maddening throng.

Although it is true that dangers surround the lives of both country and city children, to live under open sky, to breathe the pure air of the country, to gain strength there and to learn to labor and not to be ashamed of any honest toil are far better portions of education for our youth than to live lives of idleness, to see and know and try all the wickedness and meet the more numerous temptations which abound in our great cities.

Although some of the things which I say to you may seem theoretical and although you may not agree with one of my propositions, although many of you could no doubt give me practical points in farming and although I may provoke a discussion, many of whose points I am unable to answer to my own satisfaction; I am freer to come before you and you will listen more readily because of my interest in your lives and because there is hardly a line of farm work at which I have not tried my hand. You will believe me the more readily because after having lived upon the farm a number of years and then having lived under the shadow of a great city for several years, I come to you and say that the man who owns a small farm with a comfortable house upon it and the necessary implements for carrying on his work, is the most independent man and ought to be one of the happiest on earth.

One of the greatest questions of the age is how to keep the youth of our land away from the cities and help them to be contented to remain upon the farm at least long enough to learn the great secret of ability and inclination to work. There is an open door to other work for every young man or woman who is healthy, strong, honest and willing to work and who has first shown ability to work on the farm.

To the weak, dishonest, lazy young man or woman the city offers an open door to the grave or to a life of misery, even if it be not a life of disgrace or crime.

The solution of this problem lies in the making of farm life more attractive and profitable and in the use of brain as well as muscle in farm enterprises.

A lesson that most farmer's should learn is to farm less land and farm it the better. Here as in every line of business it is, or should be, not how much, but how well. As I go about the country I always wonder why there are so many houses which are not home-like or attractive, why there are so few good gardens, such poorly kept orchards, and seldom beautiful lawns.

Every man who owns a ten acre farm could have a neat yard and house, an orchard which would produce him more fruit than his family could use, and of a quality such as we poor town people know nothing about, unless some kind farmer friend invites us to his home and permits us to sample some of the fine fruit from his own orchard. He should have a garden which yields two-thirds of all that his family needs to eat and a little library of choice books to beguile the long winter nights and tell him how to make two bushels of corn or three barrels of apples grow where his father could cause but one to grow.

The world moves and grows better every day. Are you as farmers contented to let the dwellers in cities take advantage of all the improvements in machinery and knowledge or do you propose to share in all the good things that the wise men of the ages past have learned? Why is it that in every community there are farmers who never fail to make some money each year while others fail just as regularly? I have heard people say of those who succeed that they are lucky. I am no believer in luck or accident but a strong believer in the man who when he prays, "Give us this day our daily bread," is ready to get up at six or even four o'clock to go out and hoe potatoes and thus help Providence answer his prayer.

I claim that the farmer should be an educated man and see no reason on earth why a college education would interfere with his success any more than with that of a school teacher or a bank cashier. A certain amount of muscle is necessary to carry on farm work but a good backing of common sense and some education will produce more bushels of wheat to the acre than main strength and awkwardness.

It is just in this connection that the subject I am to discuss bears upon the life of the farmer. Every one who attempts even in a small way to till the soil soon learns that for every plant that grows there are at least a dozen "bugs" standing on guard waiting for the seed to sprout, some of them are so voracious that they don't even wait for the seeds to sprout but crawl into the seeds long before they are ripe and even prevent their sprouting.

Nearly every state and territory in the Union so thoroughly appreciates the injury to crops by insects that trained entomologists are employed by the government to devote all their time to inventing means of checking the ravages of these insects.

J. A. Lintner, who until his death was State Entomologist of New York, has published a list of 365 different insects which feed upon the apple alone. Is not this an army sufficient to demand the brains as well as the muscle of fruit growers in order to check their damage to the apple? Fortunately natural means of holding these pests in bounds exist, or long ago all vegetation would have been removed from the earth. Even the bugs have other bugs to bite them, and so fierce is the conflict between them that it is only when man interferes, or something out of the usual happens to greatly disturb the balance usually maintained by nature, that any one becomes so numerous that we have outbreaks similar to the plagues of Egypt. Many insects abound whose presence is unknown to any one except the entomologist until an unusual year, some change in the usual condition, something which either destroys their ordinary food, or their enemies, and in a day as it were, millions of some of these destructive insects begin to feed upon your crops, and it may be, as sometimes in Kansas, that every green thing is completely stripped of its leaves and then the enemy, as suddenly and as mysteriously disappears, until a similar cause produces it in similar numbers.

The old saying, "An ounce of prevention is worth a pound of cure," is doubly true here and a secret which many farmers have failed to learn, is that one of the best possible ways to check injurious insects is to keep everything about the farm in "ship shape" and as neat and clean as possible.

Every brush pile is a veritable breeding place for these enemies which his carelessness preserves to prey upon his crops. Every untrimmed tree bears suckers which sap the nourishment that should go to the production of fruit and upon many of these useless branches winter the insects, which next spring will lay the thousands of eggs to produce the caterpillars which devour his fruit trees. The refuse of his wood pile shelters the bugs, which the following summer devour his squashes. Some stagnant, useless pool, which should have been drained and cultivated, breeds the mosquitoes which worry his stock and carry the poison of malarial diseases to increase his doctor's bill. The neglected refuse about the barn is the favorite breeding place of flies and also of the beetles which continue their existence the following summer at the expense of his vegetables.

Neatness about the farm not only makes life there more enjoyable but it places potatoes and apples in the cellar and adds dollars and cents to the farmer's income.

Many insects and fungous growths never begin their attacks until the trees or plants are beginning to die from some other cause, but hasten the death of sickly trees and then spread to others, yet dead trees are often permitted to stand year after year in the orchard to decay, or the farmer simply piles the brush and leaves it until the insect life which it contains has developed in myriads and passed on to attack living trees.

A single illustration will answer my purpose. A few years ago the fruit bark beetle began to be talked of in Illinois. Many orchards were examined but in no healthy tree could evidence of its presence be found. Many trees with a single dead limb were found badly infested. I myself had no difficulty in finding trees as full of the tunnels of this insect as though a charge of bird shot had been fired into the limb at short range. Wise farmers began at once to clear up all the rubbish and cut away the dead limbs from every tree and soon it was difficult to find any signs of the pest in well cared for orchards.

The careless, slovenly farmer who permits the weeds to go to seed in his fence corners and hedge rows, who takes no care of his fruit and shade trees, but permits his farm to become the breeding place for all the insect pests which prey upon his neighbor's crops after eating up his own, is just as dangerous to the farm community in which he lives as the criminal in the streets of a city, in fact he is criminally careless and there should be laws passed by our legislature to punish the careless fruit grower or crop-raiser whose negligence is yearly destroying the results of the labor of those who live near him.

Permit an illustration from the letter of one of the most successful fruit growers of Southern Illinois: "To get the best success in spraying it must be by the combined efforts of the apple growers in a neighborhood. If only one man sprays he must fight not only the insects that breed in his own orchard, but also those that come from his neighbor's orchard. I find that I get the best apples from the center of the orchard, the outside rows always being worse affected with insects than the trees in the center of the orchard."

Why not after paying the salary of a State Entomologist, take his advice and urge upon our law makers the enactment of laws to protect the careful farmer? Some of our states have such laws, why not Illinois?

I believe that I do not exaggerate when I say that no recent insect enemy has done so extensive and serious injury as the San José scale, and that its introduction into most of our eastern and central states was due to the carelessness of a few New Jersey nursery men. An ignorant man introduced into Massachusetts the gypsy moth, an enemy which has cost that state thousands of dollars and whose extermination, unless large appropriations are soon made, will be impossible. Even the World's Fair of Chicago, with its stored exhibits of grains and seeds from foreign countries, brought us several insect enemies which are doing serious damage to stored grain, flour, etc., in many parts of the United States now.

These general remarks have been too far drawn out already. I realize that I am but calling to your minds things which you all know. If, however, I

have caused you to think seriously results will follow, for some of you will think out means to better your condition. The main aim of this paper is to discuss the two general classes of insects, injurious and beneficial.

A few facts concerning insects may not be amiss. If there are 365 injurious insects which feed upon the apple alone, you may form some vague idea of the vast number of insects which exist. Some have estimated the entire number of species in the millions and no doubt there are a few hundred thousand found in America. Yet were I to ask the ordinary individual who has given no special thought to the matter, how many insects he knows, the probability is that he would say fifty at the most.

The reason we know so little about insects is that they seem so insignificant and many of them really are so small. Then again Nature has provided the insects with a wonderful means of escaping observation. Many of them are so colored that when at work on their chosen food only the sharpest eyes can see them, and again thousands are so small that a powerful microscope is necessary to see them at all. Here as elsewhere, size does not count, for some of the most destructive and some of the most beneficial are the smallest.

Every one should know that insects during their lives pass through remarkable changes. All of them pass through some changes and most of them through four completely different forms.

First there is the egg which usually produces some kind of a worm, caterpillar or grub. This is the form with which farmers are most familiar and is the stage of their life during which most of them eat most, hence are most destructive. After this stage is completed most insects enter a resting stage. Some times this stage is passed in a cocoon in the ground, some times attached to the twigs of a tree, and some times in or on the body of an entirely different insect. During this stage the insect does no damage, but while in this stage is often easily destroyed. From this sleeping stage comes what is known as the perfect insect whose main object in life is to produce its kind—deposit its eggs and die. Often the perfect insect takes no food and lives but a few days. Often too, the farmer sees these perfect insects but does not know that one insect frequently lays hundreds of eggs from which, in a short time, come the worms or caterpillars which destroy his crops. If he read he would know this and by killing the insect in this state prevent its laying the eggs which are to do so much injury.

A common illustration will serve to make plain:

Probably not one, at least not many of my hearers know the moth which produces the worm in the apple. It is a tiny little insect, almost clear black, with a golden spot on the hind wings, and when it stretches out to its fullest extent is less than three-fourths of an inch from tip to tip. One of the best ways to prevent the appearance of this moth is to feed all drop apples, cores and rotten apples to hogs or in some way destroy the worm which is to produce it. This tiny moth comes from our cellars and apple bins and from places where it has been spending the winter in the sleeping state and is ready to deposit its eggs upon the apples at blossoming time, and the worm which comes from these eggs is just as ready to bore its way into the apple unless checked by spraying. You know the rest; how the apples are one-sided and fall before their time, often ripening prematurely and falling to the ground, where, unless destroyed in some way the worms enter the sleeping state and later on produce other moths to lay eggs upon other apples.

Would it not check the ravages of this pest, the codling moth as it is called, if all farmers were to keep their cellars clean, leave no rotting apples there unnecessarily, pick up fallen fruit and feed it to hogs or occasionally pasture hogs in the orchard? It would certainly help, but the enemy is too numerous to be exterminated that way, and spraying produces the best results.

To quote again from a successful fruit grower: "For codling moth I spray three times, the first as soon as the bloom drops, followed in ten days or two weeks by the second, and this followed by the third in about the same length of time. I use London purple in preference to Paris green, as it is easier to keep in solution. I use not to exceed one-fourth pound to the barrel,

probably a less amount would do as well, just enough to color the water. In mixing the poison I mix just enough for a barrel at a time; put the poison in a vessel with just enough water to make a paste, and when the paste is made empty it in the barrel of water and stir well. If a hard rain follows the spraying it will be necessary to go over the orchard again." I quote from this man because I have seen him gathering and barrelling good apples and selling them at a good price when none of his neighbors have any to pick.

Spraying when the blossoms have fallen, however, will not affect the canker worm, a pest which sometimes makes an orchard appear as though a fire had swept over it. To reach this enemy one must spray as soon as the leaf buds appear, for the worms feed upon the opening buds and war against them must be begun early.

The New York State Entomologist names seventeen enemies known to prey upon the apple previous to blossoming time and all of which may be reached by spraying as well as the plum curculio.

Everyone knows how to deal with the potato bug, Colorado potato bug, as it is often called. Paris green is the best remedy, but farmers sometimes forget that these beetles have wings and that the dose of poison must often be repeated. The females lay many eggs and it is but a few days until a new crop of bugs will be eating the potato leaves.

One of the best friends of the farmer is the rose breasted Grossbeak, a bird easily known by its rose-colored throat and the black and white banded appearance of its wings when it flies, also by its beautiful song. This bird is especially fond of potato bugs and will even come into the gardens about town for them, yet for his pains he has been accused of stripping the leaves in pure wantonness.

Insects which suck their food from the leaves or seams of plants are not usually affected by spraying. Among these are the squash bug and the chinch bug.

For the former the best means of protection is constant watchfulness, the destruction of the old bugs wherever found and especially in the refuse about wood piles where they winter and are ready when spring comes to place a multitude of eggs on the tender squash leaves and from which will soon tumble a multitude of little bugs, which are surely born hungry, for they at once attack the tender leaves and stems and suck all the nourishment that should go to the production of squashes. The vines must be searched and the bugs removed; traps may be made by placing shingles and large leaves about the vines; the bugs will, many of them, go under these traps at night and may then be killed in the morning. When the stems are seriously attacked a mixture of salt and ashes rubbed about the stems where they enter the ground will sometimes check their injury. If the soil is rich the plants will often outgrow the attacks of the squash bugs. Wood piles and other refuse heaps where these may hide should be raked together in the spring and all worthless material burned so that the wintering females will be destroyed.

Burning grassy tracts of land after the first warm days of spring have aroused the sleeping chinch bugs, will destroy many of the bugs, and at the same time kill the wintering forms of many other insects which pass that season on the stalks or about the upper roots of grasses.

If squash bugs are known to winter in piles of wood that stand over from year to year, they may be killed by placing a large canvass or tarpaulin over the wood and then placing beneath this a bowl containing carbon bisulphide. This evaporates quickly and the fumes are deadly to all insect life within its reach. The fumes, like those of gasoline, are explosive, and care should be used not to bring near it a lighted cigar or pipe or other source of fire.

Insects which bore in the trunks or stems of plants and trees are hardest to reach. Three general methods of reaching them may be worthy of mention. First, to smear the trunks of young trees with some material which will drive them away, or to wrap them with paper, wood veneering, or cloth to prevent their attacks.

The second method is to paint or wash the trunks of the trees with something that will kill them.

Third, to probe their burrows with a wire and kill the larvae.

As to the great outbreaks of certain insects there seems little that can be done after the insects arrive. The chinch bug is seldom destructive to other crops since farmers ceased to raise wheat. What seems to me the best method of preventing ravages of cut worms and wire worms is to plant some crop that is not like grass in its nature before attempting to raise corn. Grass, oats and corn are much alike in their growth, and insects feeding upon one would likely attack the others. Cut worms may be abundant in the crop of grass and not seem to injure it, yet when corn is planted the stalks are so much more scattering that the worms of one brood coming out all at one time are able to cut it all down. If clover or some other crop unlike corn were tried after the grass or oats it is likely that the worms would die or seek other feeding grounds. Every rule, however, seems to fail sometimes, and no doubt the varying seasons have much to do with insect life.

The last class of injurious insects which the time will permit me to mention includes those which attack stored grain, flour and feed.

A bulletin issued by the United States government mentions seventeen of these insects. Of this number five are moths and the remainder larvae of, or mature beetles.

Two practical methods for their destruction are known. The first is preventive, i. e., bins where grain is stored should be thoroughly cleaned and kept so. Insects of this nature frequently hide in cracks and corners of bins and so lie in wait for the new grain. When the grain is placed in these bins the insects rapidly increase and may destroy it completely unless checked. When the grain is found to be infested a sure remedy if the bins are reasonably tight is the use of bisulphide. Place a canvas over each bin, supporting it above the grain by sticks, and beneath it place saucers or bowls containing the carbon bisulphide. The gas formed by evaporation of the volatile bisulphide is heavy and will penetrate to all parts of the bin and contents, and will kill all insect life without injuring the grain for seed or food. The caution which must ever be remembered is that this gas is explosive and lighted cigars or pipes must not be brought near the bins which are being treated. The bisulphide is usually evaporated in vessels containing one-fourth to one-half pound each, and is applied in tight bins at the rate of a pound to a pound and half to a ton of grain. For smaller quantities an ounce to every 100 pounds of infested matter.

Bisulphide of carbon retails at 20 to 30 cents per pound, but wholesale in 50 pound cans may be obtained at 10 cents a pound. A grade known as "fuma bisulphide," for sale at the latter rate, is said to be the best for the purpose.

Beneficial insects may be included in three classes:

1. Those which directly aid the farmer, as the bee, by producing honey, and the bumble-bee and many others by carrying pollen to fertilize plants which are not self-fertilizing.

2. Those which prey upon injurious insects, either eating them themselves or storing them up as food for their young.

3. Those which are parasitic, i. e., feed upon living bodies of other injurious insects and eventually kill them.

Considerable study has been given to the effect of spraying upon bees. No doubt when the spraying is done during blossoming time some bees are killed by the poison, but I believe the weight of evidence is in favor of permitting the fruit grower to spray his trees when necessary. As to the bumble-bee and other pollen carriers, I simply urge that they be not thoughtlessly destroyed or considered as entirely useless.

Little can be done to increase the number of beneficial insects which prey upon the injurious. A few attempts followed by partial success have been made by entomologists to introduce insects from other countries where they

are known to destroy a certain pest. The most noted attempt in this line was the introduction of an insect into California to feed upon the orange scale. Probably the most beneficial common insects are the wasps, spiders and lady birds.

Parasitic insects abound in great numbers and are of all sizes and kinds. Many of them resemble tiny gnats and are so small that we seldom or never see them. Yet as an instance of their work I will mention that I have seldom attempted to raise the larvae or secure butterflies from the chrysalids of the common garbage butterfly without securing instead of the butterflies a host of tiny fly-like parasites.

I do not know an injurious insect that is not attacked by at least several of these tiny enemies. The very fact that many of them are so small enables them to attack their host as, as it is called, without its having any means of preventing the attack.

I frequently find the green tomato worm with a colony of cocoons upon its back, numbering from thirty to one hundred or more, from each of which is almost sure to issue a tiny parasite to attack other tomato worms. No one except the student of insects can form any idea of the immense number of these insect friends or the value of their attacks upon our enemies.

Some beneficial insects resemble wasps so closely and pretend to be able to sting so viciously that even the experts are sometimes deceived. Some of these wasp like creatures are provided with long ovipositors and possess an unerring instinct which enables them to use it in placing their eggs at the bottom of tunnels made by borers, or even beneath the skins of the borers themselves. Along at least one street of Belvidere are a number of maple trees which are badly infested by borers. Last autumn on nearly every bright day on which I passed these trees I found one or more of these ichneumon flies, as they are called, probing the holes made by the borers and depositing their eggs.

It is almost impossible to speak of injurious insects without speaking of their worst enemies and making a plea for the birds. There is hardly a bird which comes to our orchards or gardens that is not worth its weight in gold because of the many insects it destroys. Farmers should consider the birds their best friends and encourage them to live and nest in their orchards. The tent caterpillar and similar woody or hairy larvae are let alone by most birds, but the cuckoo is especially fond of them and eats them by the hundred. Several times last summer I found a cuckoo feeding upon a colony of these worms which were stripping the foliage of a fine walnut tree.

Toads and bats are also fond of insects and should be encouraged to live about the orchard and garden. The bat is said to be especially fond of the codling moth. Dragon flies or "Devil's Darning Needles," as they are called, live in their early stages at the bottom of stagnant pools, but the adult insects feed upon mosquitos and other insects. One day while collecting insects I started from the weeds a moth which I wished to add to my collection, but before I could capture it with my net a dragon fly swooped down like a hawk and bore the prize away.

In concluding my rambling remarks permit me to sum up four points:

1. One of the best ways to deal with injurious insects is to destroy their hiding places by keeping the farm and orchard neat and clean, and by destroying all rubbish and burning waste grass tracts. Prevention is better and surer than cure.

2. The farmer should spend some of his time reading the reports of the State and United States Entomologists, and in learning what insects are injurious and how to deal with them. Many such reports may be had for the asking from Springfield or Washington. Uncle Sam will even pay the postage on most of them.

3. The farmer should study the condition of his farm, rotate crops, and not only rotate but know the nature of the crops so well and the enemies of each, and how to pit one against the other that he may outwit these enemies

and destroy them. He should not only attempt the remedies advised by entomologists, but note the results and publish them so that others may profit by his success.

4. He should know something of the beneficial insects and do all that may be done to aid them in destroying the injurious. He should encourage the presence of the bird; in fact, take advantage of inventions or anything else that tends to make his harvests more sure, and by uniting brain and muscle in his efforts, live the ideal life which is possible to every farmer and make farm life so profitable that the boys will cease to wish to leave the farm for the uncertain city.

HORTICULTURE ON THE FARM.

By C. W. Fangenroth. Edwardsville.

The subject, "Horticulture on the Farm," being assigned to me has always been the most interesting and enjoyable work on the farm to me, and is of very great importance and worthy the consideration of every farmer of this county, or of this great and productive State of Illinois. And, as I have lived more than fifty-five years on the same farm, planted my first orchard when sixteen years old, and now, at nearly three score years and ten, I am more enthusiastic, and willing to plant now of the new and better varieties of fruit than when I planted my first orchard, and enjoyed the first fruits of my own planting. In what I here present to you on the subject, it is of my experience and practice of today, and the desire that I may be able to induce others to plant and to enjoy one of the Creator's greatest blessings—the using and eating the luscious and health-giving fruits of so many varieties.

And, no doubt, many of you have noted and observed how enticing and elevating the work becomes to those who are engaged in horticulture in its various features, and how they keep on planting, yes, many of the leading orchardists having planted more than one thousand acres in fruit, and still planting of newer and better varieties, while the majority of farmers have not fruit enough for their own family, for which there is no logical excuse in not growing them. For you must know that, in the last decade more new varieties of fruits have been originated by hybridizing than ever before attempted; and work still goes on, so that in time fruits for all soils and localities may be found, and can be planted with profit for home use, if not for market. And, for the home use of fruits especially, I wish to speak first, for the free and plentiful use of fruits in the family has the tendency, and in a great measure, will prevent other injurious taste for tobacco, beer or fermented drinks to be acquired; such, at least, is my observation in my own family, and many others that I am acquainted with; furthermore, you will not find many drunkards among our horticulturists. I have also observed that our stock on the farm is much benefited by the feeding of apples, peaches and pears, and also plenty of roots, and the last season when our peaches were dropping so badly I fed wagon loads of them to my hogs with good results.

Now, then, when it comes to our eating and drinking. We try to supply the natural wants for the development of our bodies, and to a large degree our mental growth, also. But if the body's need and food is not nourishing or insufficient in amount, men will try to make up the same by stimulants, and while their effects last they seem to do well; but, after the effects are, in the long run, debilitating, and, if persisted in, require more and larger portions, which, at last, have a demoralizing tendency that will lower the human beings to animal and brutish creatures; not fit to associate with, and the poor-houses, jails and penitentiaries are filled with them. The poverty and misery such lives produce is a disgrace to our present day civilization. And I am sorry and regret to say and state here that a great many of our boys and young men on the farm go to town to smoke, drink, and often gamble, and as they say have a good time that will end in the loss of character to themselves and sorrow to their parents; and the evil seems to be on the increase; but had their taste been cultivated to eat good fruits and plenty of them at home, their bodies would have been better developed, and the mind

led in a more useful direction, especially if those fruits had been planted and grown by them, for we all know that children, when they see the good results of their work, they are stimulated to greater exertion and become more interested in their home. In my own experience with my boys I solved the problem, "How to keep the boys on the farm," and the way of my success may aid others to do the same. When they had done with their schooling they wanted to leave the farm and find other employment, thinking of having more congenial associations, pleasures and more profits. But I found in looking over my orchard, vineyard and small fruits that they were not up to date and proposed and determined to weed out, grub up and plant newer and better varieties of fruit, and today both are satisfied to stay on the farm, and they and the rest of my family have been eating the choicest fruit our soil can produce, as the best belongs to us first, and they take a greater interest in farming and fruit growing than many young men do now days on the farm as the town has no attractions for them. And I hope that many more farmers may be induced to try the above plan and give the boys another chance. With these preliminary remarks I will give my views why horticulture should be more general on the farm.

First, as to its need. No one who travels over the country in any direction can not help but see that the old orchards of former years' planting are soon passing away, or the old varieties become unprofitable and therefore neglected; the result, we find so many farmers homes without fruit for the family. Another important feature to be observed, that the farm looks incomplete, when, on the other hand, the orchard would be made a windbreak and protection to the home, if planted on the north or west of the house, having had the benefit of such a protection for my own house and barn these many years, besides an evergreen hedge on the north and west more than thirty feet high, has modified the wintery blast several degrees of late years, which I enjoy very much as I get older, as it adds much more to the looks of the surroundings of the home compared with the money and labor expended when planted.

Second, the preparation of the ground. As with many other undertakings you must have a plan and foundation to work by or build upon, and horticulture is no exception, and many farmers fail for not starting right. There is one point especially I wish to call your attention to and impress upon your mind if I can, it is, that who of you owns one acre or thousand acres of land your deed gives you the right to all the air above it, and to the center of the earth if you have a mind to go so deep, and many farmers plow and plant as though they have only the right to use four to six inches of the surface; the rest below is only dead capital to them. Now, my own and others growing fruit with success, know today that you must work your ground deep and thorough for the orchard, vineyard and small fruits of every kind. I will here give my own way of preparing the ground for vineyard and small fruit. I use three different plows to do this, and for each a good team and plowman. The first a twelve-inch turning plow, the second a trench plow, set from the land to run in the same furrow, and the third a subsoil plow, which only lifts and loosens the subsoil, like a mole running under the ground. All combined stirs the ground sixteen to twenty inches deep, in which all kinds of berry plants will grow if properly planted and cultivated, and if a crop of green clover, rye, crimson clover or cow peas are first grown and plowed under while in blossom, the ground would be supplied with the best of fertilizers for both plants and fruit for many years to come. Now for the orchard of one acre and up to five, I would not plant a tree without the ground being trench plowed at least. That is, use a three horse plow, cutting fourteen to sixteen inch furrow, and followed with a twelve-inch, two-horse plow, both to run to the depth of twelve inches or more, and be sure to have a large growth of green manure to plow under. You will then supply your ground with a large amount of nitrogen, which the clovers and peas mostly receive from the air, and seed of which can all be sown in the spring. In a good season they will make good growth to be plowed under in early fall, which will put the ground in fine condition for fall or especially spring planting. It is not necessary for me to tell those who want to plant on a larger scale, by the tens and hundreds of acres, (for I am opposed to all monopolies, even in

horticulture), how to prepare their ground, but would rather see every farmer's family and table supplied with plenty of good fruit first, and be successful when they plant.

Third. Planting. The distance apart depends on the varieties planted. Apples, not less than twenty-eight feet; pears and peaches, twenty feet; plums, sixteen feet; apricots and quinces, twelve feet, I find best suited to my timber soil. Now, if you have your ground prepared as above, you can plant your berries among your apple, pear, and peach trees for a number of years as I have been doing with good results, as the berries come into bearing early and will pay for the cultivation of the trees. Now, a few remarks as to pruning trees for planting. In former years it was thought best to save all the roots possible and leave them long, and the holes dug for them were many times too small and the trees made slow growth. Now of late years the roots are cut but two to four inches long, and the tree is cut off within two and three feet from the ground after it is planted, which I call the planting of sticks, for that is all that is left of your trees. The advantage largely owing to the many fiber roots starting from the shorter roots, and roots having no limbs at the top to support will push out in every direction, and the stick is not swayed back and forth by the wind, will draw its nourishment more freely, and new buds will start and form a new and better top to the young tree, needing less pruning in the future. The cultivation of the young trees after planting will, in a measure, determine how many the planter will lose the first year. I have found nothing better than a six tine fork for digging around young trees; you can use other tools with horse power, but unless they are handled with care many trees are bruised, which often shortens their life and profit. And now a few directions for pruning, which only amounts to the shortening in of the limbs every year, as the trees will grow very fast and thrifty. With the proper care taken of them they will become a source of pleasure and profit, and will keep the boys on the farm if they once become interested in horticulture. For who, of us older boys on the farm, will not remember the many treats and surprises we enjoyed when the trees and fruits we planted thirty to fifty years ago bore good fruit, and what disappointments we also had to bear when fruit turned out a poor seedling instead of a pippen, a Georgia peach or sweet seckle pear. But many of us kept on planting, and will leave something better than we found when we started upon our life's work on the farm, with many more hardships and trials which we encountered, and the work we had to do in opening up our farms and making a home for our family; and may those who come after us to follow our example and be induced to plant, as others have done before them. And now in conclusion, I must speak a few words for the planting of shade and ornamental trees; for no one who can sit under his own vines and shade trees but will admit that the pleasure and comfort enjoyed sitting in the shade and taking his needed rest when the thermometer climbs to the nineties, but the cooling breezes fan his heated brow. That the time and labor spent in planting those trees abundantly pay him in casting their protection over him and his family; and if the farmer will plant a few evergreens and flowering shrubs on his grassy lawn, around his dooryard, his good wife and daughters (if he has them), help to start some flower beds also; the farm and its home life will have some attraction and pleasure for them which money can not buy. And, furthermore, their daily labor will be made more easy to bear, and the refining influence of flowers is not to be overlooked and valued lightly in the making of a home on the farm. And no doubt but many boys and girls too, would have remained on the farm had their environments and life been more congenial to their wants and aspirations.

TREE FRUITS ON THE FARM.

By L. R. Bryant.

At the Omaha Exposition, Illinois made a fine show of fruit, under the direction of a committee appointed by the Illinois State Horticultural Society. Near the close, this committee issued a souvenir in the shape of a little booklet, in which it set forth some of the claims of Illinois as a fruit growing state. The claim was not only made that the Garden of Eden was located in Illinois, but that some of the early pioneers of horticulture had seen the stump of the tree, from which Eve plucked the apple which made so much trouble in the world. However this may be, we can all grow orchard fruits if we will, and therefore in treating on the subject of "Tree Fruits on the Farm," I shall not enter into any extended argument why a farmer should have an orchard, for I think it is a self-evident fact that if he desires to live with reasonable comfort, and enjoy the good things of this life, and has a decent regard for the comfort and health of his family, he will surely want an orchard.

An old friend of mine and a good institute worker, used to tell a story some years ago, when he thought I was getting a little too "fresh" on horticultural matters. The story runs something like this: One time when visiting in Minnesota, he was out riding over the farm with the owner, and the latter remarked, pointing, there is my apple orchard. My friend looked in the direction indicated, but saw no trees, or anything that looked like an Illinois orchard, and said as much. Oh, well, the gentleman replied, I plant this field to such crops as I think advisable, and the proceeds I use to buy my fruit with, and so I call this my orchard. This may be a very good plan for Minnesota, but I don't think it is for the average Illinois farmer. Now please remember that I shall not talk about commercial fruit growing, but merely about trees for the ordinary farmer who wants fruit for his own use, but expects to make his money out of something else; neither do I claim to know all about this subject I am talking on, and I shall be much disappointed if I do not learn something of value from you, before we are through discussing this subject.

It is hard to give any arbitrary size for a farmer's orchard, or to dictate what kind of trees to plant, but I will submit a plan which is elastic, and may be varied to suit individual needs. For our purposes at the present time, I will assume that eighty trees will be sufficient for the ordinary sized farm. Of these forty-eight will be apple, six pear and eight each, peach, plum and cherry. The apple to be planted in six rows of eight trees each, 30x30 feet, and the other trees to be in two rows of fifteen trees each, 15x20 feet apart. As you will see, by this plan, the size of the orchard may be varied to suit circumstances, and the dimensions of the plat of ground. The apple may be planted in five rows of ten trees each, or more rows may be added, or more rows of plum, cherry, etc. Here let me say that I advise planting grapes, currant, raspberries, etc., in rows right alongside of, not in, the orchard, and it will be found much more convenient to cultivate, spray and care for them, than if in a separate plat. Now comes the question, where shall we locate the orchard. I can answer this very quickly, just as you should your kitchen garden, just as close and as convenient to the house as possible. When along in harvest time, your wife wants some of those Duchess apples to make a pie, or a little apple sauce, some Sweet Junes to bake, or Whitneys to make into jelly, how much better to have them where she can send the children, or run out after them herself, without going half way across the farm, perhaps through the weeds and wet grass. Then again, if you can, plant your orchard so one corner of it can communicate with the chicken yard, the reason for this I will give later. Of course an orchard should not be planted in a pond hole or in the front door yard, preferably plant on a northern slope and on the timber or clayey soil, rather than the rich prairie, but at any rate have it convenient and where it can be cultivated and sprayed. In these days of insect and fungus pests, to have best results, we must not plant fruit trees promiscuously, but in an orchard, where they will be accessible for cultivation and spraying.

The location fixed, the preparation of the ground, and staking out the orchard are next in order. Commencing at one side, set stakes at each end of where you want the first row. Then taking your best plow, strike out two deep furrows right in line with these stakes, turn around and throw the dirt back again, making a back furrow where the rows of trees will come, plowing half way to the next stakes. Repeat this operation at each row, and you will then have your land laid off into lands, and the trees are to be planted in the centers, where the ground is pulverized deeply and where it can not be stirred deeply again as long as the trees remain. Now fit the ground as you would for a good crop of corn and with the same tools. To lay off the ground for planting, prepare stakes, eighteen or twenty inches long, corn stalks will do, stretch a line for each row and then run a wheelbarrow along it, or make a mark in some way that you can easily see. After the rows are all marked one way, stretch a line across the rows, at right angles, getting the angle as a carpenter would in laying out the foundation of a building, and from the line so established, measure off the two outside rows setting a stake where each tree is to come, on the line previously made. The stakes in the intermediate rows can now be set by sighting or by stretching a line across. In digging holes a replace should be used to ensure getting the tree in line and at the right depth. This is a board six inches wide with a hole near each end and a notch cut out on one side equidistant between the end holes and in a line with them. To use this replace, lay it on the ground with one of the stakes in the center notch, place other stakes in the end holes, remove the board and dig the hole with the original stake as the center. Make the hole of good size and depth and when ready to plant the tree replace the board on the end stakes and put the tree in the center notch, the tree will then "line up" and with a little care to preserve the general level of the ground where the stakes are put, the board is a guide to the depth of planting the tree should be one or two inches deeper than they stood in the nursery, to allow for the settling of the ground. Spread out the roots, naturally trimming off all bruised ones, and work the fine earth among the roots and press firmly. Fill the holes two-thirds full, and then pour in a pail of water, and allow it to settle awhile before filling up, mound up the trees a little having two inches of fine loose earth on top. Lean the trees a little to the southwest when planting.

As to varieties, take the list recommended by the Northern Illinois Horticultural Society at its meeting at Galva, last month, as a basis, modifying it to suit your particular needs and location, always favoring such varieties as have done well for you and your neighbors under similar conditions. But never, no never, unless you are an amateur, and have a fondness for the work, indulge in new, high-priced and untried varieties. We have in this State, under the direction of the State Horticultural Society, twelve or fifteen Experiment Stations, in which are hundreds and hundreds of new varieties of fruits which are constantly being tested and reported on by experienced men. Once in a while one is found of superior merit, but many of them will eventually be thrown out as inferior to the old varieties or not enough better to increase the list. Cultivate the orchard in corn, potatoes or garden crops as long as this is practicable, (manuring when the trees come into bearing or show signs of short growth,) after which cultivate shallow with disk, harrow and other similar tools; keeping the ground in a loose, light condition; this may be varied by sowing clover, cow peas, etc., but never crop with small grain or allow the orchard to run to blue grass.

Pruning is important if done right, but unless the operator has some idea what he is pruning for, and what effect he expects to produce, it had better be neglected, and as to this thing of allowing some traveling tree-pruner, of whom you know nothing, to come in and hack at your trees, don't do it if you value your orchard. In training your trees when small (and this is the time to shape trees as well as some other things,) aim to have one central leader with side branches coming out at intervals, avoiding all sharp forks, and do not allow several main side branches to come out exactly the same height, as the tree is more apt to split down or basins may form to hold the water and cause the tree to decay there. Keep the center of the tree thinned out so as to allow the sun and air to enter, but do not trim the main limbs up

to poles with only a tuft of twigs on the ends. If the rule is adopted of keeping the inside of the tree, so that a boy can climb around in the center, readily it will not be far out of the way. Avoid cutting off large limbs as much as possible, but when it is necessary, paint the wound with mineral paint.

The newly planted orchard will require care to prevent the ravages of borers in summer and mice and rabbits in the winter. A wash of soft soap, or a whitewash to which glue to make it stick and sulphur and carbolic acid make it offensive, applied in June and November, will aid in keeping off these pests, but watch must be kept on the borers and any which are found, dug out with the knife. All grass and weeds which make harbor for the mice should be carefully kept away from the trees. A broad hill of corn planted on the south side of the tree for the first two or three years will be a protection from the hot suns of the summer and the stalks can be cut and tied around the tree in the fall for a winter protection.

The main difficulty in growing pears is their tendency to blight, and there is no known certain remedy. Avoid stimulating the growth too much by applying manure, and if necessary stop cultivation and seed down to grass for a time.

Peaches and plums should not be neglected in the farmer's orchard, even if a crop is not obtained every year. Plant the plums in the corner of the orchard near the chicken yard, if you can so arrange it, and the peaches next to them, then when they begin to bear, fence off this part of the orchard with chicken fence and give your chickens the run of it from the time the fruit begins to set until it ripens. This will often do much to prevent the ravages of the *circulio*. Do not let this care interfere with the other necessary attentions.

Spraying an orchard, if properly and systematically done, will pay, but many have very vague ideas as to what spraying is expected to accomplish, and unless it is done at the right time and with the right material, little good will be done. The time allowed for this paper will not admit of a full discussion of this subject, but I will endeavor to touch on a few of the main points. We spray with solutions containing arsenites, either paris green or London purple, to destroy insects that eat the leaves or fruit, as canker worms which eat the leaves of apple trees, and the larvae of the codling moth. The codling moth lays its eggs in the calyx of the apple, and as soon as the egg hatches the worm begins to bore into the apple. The first spraying for the apple worm should be as soon as the apple begins to form, and the second within eight or ten days after, and it is of little value applied after the apple gets heavy enough to hang down. Spraying at the proper time for the apple worm will take care of the canker worm, too.

The Bordeaux Mixture, composed of lime and blue vitriol in solution is used to prevent the scab on leaf and fruit in the apple, and the rot and other fungus diseases in peaches and plums, and in practice, is now generally combined with the arsenites, so that both applications are made at the same time. A force pump is used to apply the solution, which should be done with considerable force, through a special nozzle, which will separate the liquid into a fine spray. I will not take the time to formulas, etc., now, as these may readily be found in various publications, but I will try to answer any questions at the conclusion of this paper.

And now, in closing, I wish to say this to all farmers, that while you can grow orchard fruits here successfully, you will readily see that I do not advise any one to plant an orchard unless they are willing to take care of it in a proper manner. My advice to all is this, if you plant trees, care for them; if you can't care for them don't plant them.

DOES IT PAY FARMER'S TO RAISE WHAT FRUIT THEY MAY WANT FOR THEIR OWN USE.

By C. R. Powell, Sterling, Ill.

The subject under discussion today is, "Does it pay farmers to raise what fruits they may want for their use." It would hardly seem necessary at this time, when people are using more fruits than were ever before used to prove that it would pay for them to raise all they want. It is like proving a self-evident fact, or that a straight line is the shortest distance between any two points.

In the first place the farmer wants to get an education in that line so as to know what to set out and how to set it; otherwise it will not pay so well.

Every farmer should take at least one, if not two papers devoted to their interests. In those papers he will find more or less instructions on that subject. It pays at least in three ways.

1. In a sanitary point of view.
2. In the pleasure it gives in their cultivation.
3. In a money point of view.

In a sanitary point of view I think the doctors all agree that since the people have commenced using so much fruit that they are healthier and longer lived than before. The acids of the fruits acting upon the more solid victuals causing a better assimilation and a better digestion and consequently we have the pleasure and luxury of using the different fruits with better health.

When a man has an interest, (and all should have, where they have been properly educated) to see the necessity for raising fruits he will take great pleasure in setting out and cultivating the same. They will take the same interest in watching the growth of the plants, their blossoming and fruiting, if not more, than he takes in his growing crops. It also pays in a money way. People generally are very fond of fruits, I would use them at every meal if I had them. It is a lamentable fact that but a few farmers raise all the fruit they want and in fact some raise no small fruits at all. I will make the assertion that if farmers raised all the fruits that they would consume if they had a plenty that it would take double the amount of fruit that is now consumed. They make the assertion, or some of them, that they could put the same amount of land into something else and buy the same amount of fruit. But do they? Most of the farmers depend upon their groceryman for a supply when they come to town, possibly once or twice a week. This is not a supposeable case because being in the fruit business I know it to be a fact. A great number of farmers buy at my place by the case and otherwise, and a great many more buy where they trade in town. Where a farmer does not raise his own fruits and has to put his hands in his pocket every time he gets any, you may suppose he won't use them three times a day, seven days in a week; and another thing, those that use their own fruits will not have to use any fruits that are stale, and fruits that are stale are not as healthy as those that are used fresh, in fact might be quite injurious to health. Farmers may say that they have so much to do on their farms that they can't get time to tend to them. Now I don't believe it. There is not a farmer that does not spend more time than enough to raise ten times as much as he wanted. Most every farmer spends half a day on Saturday in town. Let him put in two hours of the afternoon tending to fruits and it will be done.

Where there is a will there is a way. No more trouble in raising fruits than in raising crops. It takes but a few plants of any variety and the cost is small. The farmers of Whiteside are better situated in regard to getting plants of the different varieties of small fruits than most of the counties of the State, as there are so many small fruit farms around Sterling and Rock Falls, where they can get the plants necessary to set their plantations and also the varieties that do the best in this vicinity.

I will also warn them at this time that if they purchase of the tree agent they will pay dear enough for their plants, and then the plants may not be what they want for this vicinity. Every advice that I can give the farmer to

save him money is in line in this discussion. It will take but a few apple, cherry and plum trees to raise all the farmer wants in this line. I have made the calculations that it will not take over one-sixth of an acre to raise all the fruits that an average family will use in a year. That is they can use them fresh three times a day and also can and preserve all they may want of the different varieties for the balance of the year. To buy that amount at last year's rate, which was very low, it would amount to \$30, which would be at the rate of \$180 per acre, and if that is not good pay in money value I don't know what is. Most of farmers have children in their families and children are universally fond of fruits, and fruits being so conducive to good health if taken in proper quantities, we should raise them on their account if for nothing else. It would be expected that there would be more fruits used on the farm per capita than in cities, but I believe that the inhabitants of the city use double the amount of fruits that the people of the country do.

The small fruits will be the strawberry, the raspberry, the currants and gooseberries, and also the blackberry. From the commencement of the strawberry, to the end of the blackberry, pickings will cover ten or eleven weeks when you can have berries fresh from the vines. Four to five square rods will be enough of each variety. Select a good place and make it rich with manure and then set out your vines in rows at least four rods long, leaving a space between the strawberries of four feet. Between the raspberries, currants and gooseberries six feet and the blackberries ought to be eight feet between the rows. If you have not a twelve tooth Planet Junior cultivator and pulverizer, use a five tooth cultivator, which most of farmers already have, and cultivate with that often enough to keep all weeds down between the rows and use the hoe for the rest, and all the sprouts that come up between the blackberries and red raspberries treat the same as weeds, cut them out. Some farmers, I think, are deterred from setting out small fruits because they imagine they will have to get a set of tools especially for that purpose.

In regard to the varieties to set out I will state that I would advise farmers not to listen much to the different agents lauding up their different fruits as being the best in the world. Get some varieties of the good old sort and let others try the novelties.

If the audience wishes I will mention what I would set out:

Strawberries—Splendid, Warfield, Crescent and Seeding.

Raspberries—Conrath, Kansas and Gregg.

Blackberries—Snyder.

Currants—Victoria and LaVersalex.

Gooseberries—Downing.

FLOWERS.

By Mrs. J. M. Clark, Sparta, Ill.

Mr. President:

We have heard various topics discussed pertaining to the best ways of making our farms useful and profitable. But let us turn aside for a few moments from all these different topics and study for a little while about the beautiful or ornamental part of our farms and homes.

While it is very necessary to study as to the best ways of producing on our farms that which satisfieth hunger, so too, we should study to develop that nobler and purer part of our nature, that inborn love for the beautiful.

In our every day life on the farm we have a great many cares, more or less wearying, and it is necessary that we have some recreation or our life would seem very dull and our natures would become hardened, and we would seem more like machines than human beings.

There is nothing can do more to charm away care and weariness than for one to spend a little time in viewing God's handiwork, the flowers, with all their beauties of foliage, bloom and fragrance, and be one ever so disheartened and blue, a few moments spent with the flowers will soon bring brighter and more cheerful thoughts and better feelings.

Who is there that does not love flowers? It is a universal instinct given us by God, the giver of all good gifts.

God, when he made this earth, sprinkled it bountifully with flowers of different kinds for our enjoyment, and to give us a foretaste of Heaven.

As has been said, "The glory of the flower is the glory of God." When we see God reflected in every flower that blooms, then and not till then will we understand the mission of the flower. God has given us the flowers (as one of the means we can use) by which we can help to make this world a bright and pleasant place.

Did you ever go out flowering into the woods or prairies and there gather the wild flowers by the handful? Our woods are tangled with creeping vines; our meadows are beautiful with blossoms; our rough country roads are ornamented with flowering shrubs and wild flowers of many kinds; there are wild roses, wild aster, Spanish needle, rosenweed, ironweed, Simpson's honey plant, trumpet flower, miniature sunflower, golden rod, and several others adorned in all their freshness and beauty. Could any one pass along so near and still not notice these wild beauties of nature?

There are flowers, flowers, flowers everywhere, but who shall say that there is a single bud or blossom too many. Seems to me I heard some one away back there in the corner say, "Ah, such nonsense? Better if she would tell our wives and daughters how to take up the hoe, and hoe the 'taters' and onions instead of talking about 'those pesky flowers.'"

But I am sorry if any one here should think it "worse than foolishness" to waste time on flowers. But lest there should be, I shall endeavor to prove to you that "it pays to grow flowers." It pays in the pleasure derived in growing them. It pays in the good that we can accomplish with them in the world. It pays financially.

There is no doubt in the least that to those who grow and cultivate flowers there is derived a great deal of real pleasure. And the more we work with them, the more we study them the more interested we become, until bye and bye we are thinking flowers, talking flowers, even writing about flowers, and then somebody dubs us "a flower crank."

Do you remember your grandmother's beautiful flower garden? Do you remember when you were little girls and boys, how pleased you were when grandma would take your hand and say, "Come, darling, let us go and see grandma's pretty flowers." What rows of hollyhocks—red, white, pink and other colors. Then there were the touch-me-nots, bachelor buttons, pinks, coreander, saffron, zinnia, morning-glory, and those poppies! How dazzling. Then there were the snow balls, lilacks, roses, and oh, so many more.

Do you remember when grandma picked a few of her pet treasures and placed them in your hand, how happy you were? But those times are gone, and so is grandma and her flowers. But tell me, where will you find any flowers that will give one more real pleasure than some of those old-fashioned flowers?

"The dear old gardens, the pleasant gardens
Where grandmother used to patter about,
Tying and pulling and sparingly culling,
And watching each bud as its flower laughed out;

Hollyhock here, and prince's feather,
Larkspur and primrose and lillies white,
Sweet were the dear old-fashioned gardens
Where we kissed grandmother and said 'good night.'"

Today we have all these and a great many more, so many that if I were to undertake to enumerate them it would take up too much time; but I must speak of a few of them, viz.: the violet, pansy, petunia, verbena, hyacinth, tulip, carnation, lillies, so many beautiful kinds, and the rose. Where will you find a lovelier, sweeter flower than the rose?

Then in our window gardens, who does not love to see "green things growing" when outside the "storm king" is furiously raging and the mercury below zero. Here in this garden we grow our geraniums of various colors, both single and double, begonias, oxalis, calla lilly, colens, roses, fucias, etc.; also the cacti, of which we have a variety of over 700 different kinds. Why, it seems we can have flowers in bloom from the first day of January till the close of December.

Yes, you say, but it takes so much work. Well, that is true. It does take more or less work, according to the number of flowers grown; but who is there here that could not spare a little time and strength and have a few flowers at least, both summer and winter.

We should try to make our homes bright and cheerful with flowers. Beautiful flowers are as much of a necessity in this age as good furniture, music, and current literature, and the cultivation of these will be but a pleasant pastime, and bye and bye we will be amply rewarded by the beautiful blooms that will give grace and beauty to our home and surroundings. And, again, flowers have an influence for good. Think of the good done by the city flower mission. Flowers are distributed in hospitals, prisons, homes of poor people, or wherever they can be given, to impart joy and cheer to those who are sick and lonely, and how thankfully are they received. We should encourage the flower mission.

Pardon me for using a personal illustration. A few years ago I was prostrated with diphtheria. For week after week there was not a soul allowed to enter my room but my nurse and the doctor. Bye and bye, as I began to mend, I noticed that flowers had found their way into my room, and as I lay there admiring them in all their beauty and loveliness, I learned then to love flowers as I never had before, and it seemed to me that they were real friends who had come in to see me.

No one but those who have had the experience can fully realize the happiness that sweet, lovely flowers bring to those who are upon beds of sickness and suffering. If we did we might be more careful to try to cheer them, if only by one little flower.

"Only a little blossom with petals of blue,
Sweet is the message it carries for you;
Only a tiny blue blossom you give.
Freighted with love, that blossom will live."

The love of the beautiful exists in every child, and this love of the beautiful which every child inherits should be cultivated; it should be developed and strengthened.

I never knew a child who did not love flowers. If this holds true of all children, which it certainly does, why would it not be a good idea to educate the youth of our land in floriculture?

It would pay, for where flowers grow, refinement dwells.

Refinement and education, though accompanied by poverty, command more respect than vulgarity and illiteracy, though rolling in wealth.

All our great poets, and others of our great men have been lovers of flowers, from Chaucer down to the present time. Mrs. Browning says:

"Earth's crammed with heaven,
And every common bush afire with God;
Every natural flower that grows on earth
Implies a flower upon the spiritual side."

Longfellow addresses flowers as: "Stars that in earth's firmament do shine."

Beecher says: "Flowers are the grandest things that God ever made without putting an immortal soul into them."

There are no monopolies on flowers; the poor as well as the rich can have them, the uneducated as well as the educated. They are so cheap that they are within reach of everyone. Then let us all be generous and have plenty of flowers. The children dearly love them. They will educate by refining and ennobling their characters, giving them a taste for that which is good and a distaste for that which is bad.

Please allow me to quote from "confessions of a flower crank:"

"I like to have flowers by the armful for Decoration Day and for children's day; by the basketful for church and cemetery use; by the handful for wearing and cutting. I like to give them to the bashful children, to tired old women, to the sick, to the poor, to the afflicted. I am only too happy to share with my friends, but I despise, detest and abhor the young woman who walks into my garden and coolly picks my roses and carnation pinks without so much as 'by your leave.' I shrink and tremble before the audacious plant beggar that confidently brings a basket to be filled with my choicest plants, and I shiver whenever an indulgent matron brings two or three of her unruly children and lets them play hide-and-seek among my flower beds. These things are worse for the flower grower than green flies and red spiders—you can drown these last, but you can't the first."

We should be very careful that we do not impose upon generosity.

We can not urge too strongly in favor of the cultivation of flowers on our farms, for they more than pay for themselves, and our homes would be dismal without them. Then let us

Scatter the germs of the beautiful,
By the wayside let them fall,
That the rose may bloom by the cottage gate,
The vine by the cottage wall.

Cover the rough and rude of earth
With a vail of leaves and flowers,
And mark with the opening bud and cup
The march of the summer hour.

Taking this question from a financial standpoint of view, of which I can not speak from personal experience, but from what I can gather from the experience of others, it pays financially to grow flowers.

Flowers play a very important part on all festive occasions, immense sums of money being paid for them for decorative purposes.

They are lavishly used at weddings, funerals, graduation exercises, banquets, and are yearly strewn on the graves of our departed heroes on Decoration Day.

There is a constantly growing demand for rare and beautiful flowers which is increasing with every year. To meet this demand our wide-awake and progressive florists have spared no pains and expense, having scaled mountains, crossed oceans and searched Europe, Asia, South America and the isles of the seas for novelties, while Holland has been turned into a vast garden in which to grow hardy bulbs for the cultured and beauty-loving people of both hemispheres.

The raising of cut flowers is a paying industry and is increasing in importance. We find that in New York alone, nearly three quarters of a million dollars are spent annually, and similar sums are expended in other large cities.

In the last twenty years floral establishments have greatly increased and several of them are entirely conducted by women, while in every one of them women are employed in various occupations.

Owing to this immense demand for flowers, of which we can only vaguely imagine, florists are fast coming to the front as among the world's most successful merchants.

But you say, we in the country and country towns can not make flower growing a success financially. No doubt we are at some disadvantage, but this reminds me of a box of lovely roses that were sent several hundred miles and went through very nicely, which leads one to believe that by carefulness in packing and shipping we can be successful, even though we are some distance from the city.

But let us look into the horticultural garden a moment and notice the flowers. There are the apple, plum, peach, pear, quince, cherry, currant, Juneberry, blackberry, raspberry, strawberry—and several other flowers.

Can you tell me where your fruit would be if it was not for those flowers? Are they not a success financially?

If we want to follow the business of floriculture and make it a success financially it is necessary to make sure, whether or not, we have the "knack" for that kind of work, or we might prove a failure.

We might take ourselves to task about it, as the old lady did the young man who had chosen the ministry as his profession in life. She said to him one day: "Why did you choose the ministry as your profession?" He replied: "Because God called me." The old lady waited a moment, then said: "Are you real sure, Johnny, that it wasn't some other noise you heard?"

I would not advise any one to go into floriculture unless he has that natural talent, so necessary to the business. If so, then bend all energy and good common sense to the work, and you, no doubt, will be a financial success.

But let us also not forget to grow flowers for our own pleasure and satisfaction. They tend to make our farms and homes more home like. Refine and educate our children for that which is noble in character. Creating in us a thankful spirit to God for all His blessed gifts. Also, encouraging us to greater usefulness and activity in all good works.

Then let us each one learn

"A lesson in each flower,
A story in each tree and bower,
In every herb on which we tread
Are written words, which rightly read
Will lead us from earth's fragrant sod
To hope and holiness, to God."

FLOWER CULTURE.

By Nora Nichols, West Union, Ill.

Some one may be curious enough to question the propriety of placing flower culture on the program of a Farmers' Institute.

But, shall we, as farmers' wives and daughters, pursue the culture of flowers? If not, why not? Some things to be taken into consideration; some reasons, pro and con.

Intelligence, time, patience and industry are necessary to successful flower culture.

No woman with any degree of propriety can plead ignorance as an excuse for not cultivating flower and ornamental plants when florists' catalogues are distributed at our very doors, giving all instructions necessary to the management, as well as climate and soil.

Time is indispensable to the general routine work of farm life, also to flower culture, and the lack of this might be advanced as a valid reason for their non-culture, yet, ought not, for while we are and expect to be a busy people, a change of work rests the mind and body. True, our grandmothers did not have a large list of flowers to choose from, but showed their good judgment and economizing of time by selecting from the hardy varieties, such as the grass pinks, Sweet Williams, peonies, the long-lived shrubs such as lilacs, honeysuckles, syringas and roses, for their busy hands could hardly compete with the modern improvements of time-saving machinery of today.

Patience, some one says, is one of the most important elements in the successful cultivation of plants, and one in which amateurs are most lacking. Certainly, not space or room, that we would frame as an excuse, for, as a class, the farmer has more room outdoors than anything else, and more range or space is given over to the weeds, the most prolific, uncultivated crop of the average farmer.

Expense need not enter largely into the category of flower culture, as we may select seeds for a trifle from the various catalogues, and we can exchange with our neighbor for these, and the steps for pots and hardy shrubbery for outdoor culture. While we are inclined to something new, we can cultivate our native plants to much beneficial advantage.

We need not fill every available space with costly foreign importations, to the almost entire exclusion of our native ornamentals.

We are inclined to shut our eyes to the richness that lies around us.

It certainly can not be a lack for the love of the beautiful in nature, as will be shown further on.

What are the advantages, or profit?

(1) From a financial standpoint.

(2) From a healthful, spiritual point of view, i. e., are they conducive to health and happiness?

Flower culture, as carried on by gardeners, florists, or those who make a specialty of it, is followed for a cash profit, but not usually so with the ordinary farmer or home florist, and yet there is a great profit possibly for the farmer indirectly. Let a farm be made neat and tasty and then judiciously adorned with shrubbery, vines and a beautiful lawn, and the value of the farm will be increased far beyond that, minus the adornment.

Many instances go to prove:

The owner of an ordinary farm put out a few acres to shrubbery and flowers which appeared to many as an unnecessary outlay; but, when it began to blossom and was delightful to the eyes, purchasers came for it, and the value was enhanced ten times that of the original.

So much from a pecuniary standpoint; but we are not to regret that flower culture is considered by many people apart from any idea of a cash return, and that profit and loss are not always counted in dollars and cents.

Though we may not be able to realize a cash profit, they may not prove to be edible products, are there not some higher attributions to be placed upon them? We read from the best of books—man shall not live by bread alone but by every word that proceedeth out of the mouth of God; and are not the flowers God's messengers carrying beautiful ideas to the soul?

"Consider the lilies of the field, how they grow; they toil not, neither do they spin, and yet I say unto you that Solomon, in all his glory, was not arrayed like one of these."

While this is a proof of God's care for his children, it also proves his consideration for the flowers. Ample proof is that we find them in the woodlands, and adorning our prairies, where no human hand has ministered to their needs.

The floral kingdom is rich and beautiful in brilliancy and beauty, and beauty that costs so little; we all enjoy it.

There is nothing ugly in the floral world. In the lines of Wordsworth:

"To me, the meanest flower that blows can give,
Thoughts that too often lie too deep for tears."

To those of us who have been reared to country life, our vision of the beautiful in nature has not been stinted.

Go to the woods in autumn. How varied the tints of the leaves of the maple, oak, birch, and other trees of the forest. It is pre-eminently a realm of sweetness and beauty, such as you can find nowhere else.

It is said that no botanist was ever an infidel, and that no one who really loves flowers can harbor evil thoughts while working among them.

While we may be unconscious of the past, there's a secret influence constantly arising from these gems of Nature, and imperceptibly we are made purer and better by daily contact with them.

The nearer men get to good mother Nature the better they are. It is like drawing nearer to the Creator, himself.

Flowers will appeal to the coarsest, hardest nature as nothing else can.

We shall not object to the farm crops—crops that shall appease the appetite, but let us also raise crops for the brains; let us make such use of our land, that the only and chief end shall not be to eat, but to be beautiful in soul.

A flower home is a natural home for beautiful souls. Some author, in speaking of the influence of flowers, says: "I do not know of any really successful country life without flowers. We can teach the boys, as well as the girls, many good and true lessons through the medium of flowers—lessons which they may carry through life when adversities fall thick and fast, the memory of which shall prove a halo of sweetness, as fancy reverts to 'My boyhood's happy home down on the farm.'"

It shall not be alone, of the rows of corn plowed, or bushels of wheat threshed, but each familiar place, and each kind and loving face shall be set in a wreath of flowers from my dear old mother's garden.

It has been advocated, and we believe the time is coming, when every school yard, in part at least, be appropriated to flower culture, and that the only idea shall not be to have books studied, but a limited time shall be given to outdoor schooling; that the boys and girls shall be taught experimental floriculture and gardening, and an idea of this being a task or work will be abolished, and on the other hand will give a relish for book lore.

Some writer suggests starting a floricultural or horticultural society in a town or community of farmers.

Such society could be extremely useful in extending a knowledge of the culture of flowers, and nothing affords more healthful pleasure to mind and body than the work which results from it. A good idea, perhaps, but under existing circumstances, in our county the work could be included in the Farmers' Institute, and we probably will realize all we are capable of giving and doing at present.

Flower culture has not been included as one of the topics of Clark county's Institute heretofore, hence we take this view of it; the object being to have it admitted, to give it a place on the program as well as in our hearts and homes, and seeking the coöperation of our husbands and brothers we shall proceed to plant, and from time to time as we meet together we can particularize or specify as to kinds and classes, adaptability to climate and soil, harmony, arrangement, etc., keeping in mind that flowers and their culture are conducive to health and happiness.

The earth is the Lord's and the fulness thereof. The flower, as well as the stalk of corn, or blade of wheat, help to complete that fulness.

FARM DEPARTMENT.

HOW TO RAISE CORN.

By John Huston, Blandinsville, Ill.

This is a corn growing State. Our welfare depends on its culture, and closely related to this is the feeding of stock. Blandinsville ships more stock than any other town on this line of railroad. Hundreds of cattle have been unloaded at the station in the past year to be fattened, and they become the granaries for the corn. From the farm comes more money than from any other source, in fact, all wealth must have its origin in the soil. He produced the following statistics: In corn Iowa leads with 354,999,000 bushels; Nebraska next with 158,754,000 bushels; Missouri with 154,731,000 bushels; Kansas with 132,731,000 bushels. The exports of corn since July 1, 1898, 99,414,000.

By studying a map drawn for the purpose of illustrating the cereal growing countries it will be seen that wheat is grown from the north to the south, from the east to the west, while Indian maize or corn, is practically confined to eight or nine states of the Union.

A corn market must be developed. We have fed it, we have roasted it, we have burned it, yet has been a large surplus, and not until quite lately has any effort been made to produce a foreign market.

I visited the last exposition at Paris and saw a kitchen where they were making corn into "all kinds of things." There is to be another exposition at Paris and another exhibit of corn, of which Hon. Clark E. Carr, of Galesburg, will have charge of the Illinois department and from which much is hoped.

Where farmers have good crops of corn and receive for it a good price, times are usually prosperous.

My mission today is to tell you how to raise corn. I have been in the business for thirty years, and, if at all observing, should know something about it. The first thing necessary is to prepare the seed bed. I take it for granted that corn follows corn. The secret of growing it is in great part the thorough pulverizing of the ground, and I desire to thoroughly emphasize this, that I don't believe a man ever failed to raise a good crop when the ground was thoroughly pulverized.

It is asked what to do with the stalks. If we had a machine that would cut them into pieces about five or six inches long, I would say cut them, but as there is no such machine, rake them. Next plow and plow good—not deep. I believe the Lord made the earth right side up, and that nature by means of the frost prepares it for our use.

Plow the ground from four to six inches deep—follow with the disc, one of the most important of farm implements. Nothing is more deceitful than a field down smoothly on top. It looks nice, but the bottom may be in lumps or chunks. Put on the disc with enough motive power to cut as deep as plowed, drag thoroughly and the question of preparation is solved, and he who fails to raise a crop is a sluggard. I believe I can raise forty bushels to the acre without a drop of rain from the time of planting, if the ground is

thoroughly prepared. I disced forty acres six times last year and raised seventy-five bushels per acre of good corn, and finished planting on June 4. I make a drag of three boards bolted together like weather boards are put on a house and follow it with a disc.

My advice to the man who pays four or five dollars an acre for rented ground is to rent forty acres instead of sixty.

Nine men out of ten have not teams enough to properly do the work they undertake. They claim they can not afford to keep them ten or eleven months. Let me tell you how this can be done. Get a good team of mules, or of geldings, and use them for the hardest work; let the others be good Percheron mares, breed them and they will amply repay for their keeping, as well as assist in caring for the crop.

I believe in medium planting, from May 15 to 25.

How shall we plant, drill or check it? Plant three grains in a hill three and one-half feet each way. This utilizes the entire ground. One detriment to a good yield is the mistake so many make in planting too thick. It shall be remembered that success depends on getting all the ground in corn, instead of all the corn in the ground, that is, there should be no patches, as are so often seen, where nothing is growing, and this is the result, usually, of faulty preparation of the ground.

(As the address was without notes or paper, and as Mr. Huston has no impediment in his speech, much has necessarily been omitted that was alike interesting and profitable.)

Q. Do you think corn grown north or south will yield as well as that grown here?

A. No, I prefer bringing corn from east or west. I like Mr. Riley's (Ohio) variety.

Q. How about corn a year old?

A. I prefer new corn as it is not so liable to rot.

Q. How deep do you plant?

A. From two to three inches. If quite dry, deeper.

"How to cultivate?" If there are no weeds, what is the use of cultivating, is the question asked by many farmers. He is a poor farmer who cultivates to kill weeds, only. I have harrowed after planting, even when the corn was five or six inches high, but that was before I knew the kind of plow to use. About eight years ago I quit using large shovels; commenced using "eagle claws." I don't care about plowing deep. I groan to see farmers plowing corn knee high with big shovels, plowing six or more inches deep. It cuts the roots and is entirely wrong.

Q. Is the root cutting the reason there is so many stalks without ears?

A. Am not prepared to say, but it is probably the cause. After the corn is about a foot high don't plow deep; plow the top of the ground. The object of stirring the top of the ground is what is called the capillary attraction. The ground is full of short capillaries or hairs, that let off the moisture. The object of cultivating is to break these hairs. Talk about farmers not needing education! It is all false. If there is a place on earth where we need education it is on the farm. Everything known to science is connected with the farm. When we get through throwing slurs at science and book learning we shall have better farmers.

Q. Have you any idea how much water corn consumes?

A. Well, guess, then multiply by 100.

Q. What kind of corn is best?

A. For timber land, white; for prairie land, yellow. I prefer yellow for feeding, but white for general purposes.

Q. Would it not be best to mix different varieties?

A. I would not. Let the expert do the breeding.

Q. What kind to you prefer?

A. Riley's Favorite. It has to be a poor year if this variety fails. I believe the corn of this year would grow if it had been properly cared for.

FERTILIZER.

By N. S. Scovell, Rose Hill.

Mr. Chairman, Ladies and Gentlemen:

There are but few if any farmers satisfied with their crop yields upon the uplands in the county. In early days these produced abundantly but by continued cropping without any return to the land of the plant elements consumed they have lost much of their vitality and we are now feeling the effects of such a course of husbandry.

The soil elements are wanting to produce paying crops. These must be known and applied. This new condition must be recognized and efforts put forth to restore their original fertility, if farming is to be a paying investment. To secure this the farmers must pay a great deal of attention to plant food.

The sources from which plants derive their food are first, the atmosphere and second from the soil. The atmospheric supply is always in abundance. The soil supply is the one that requires the careful attention of the farmer. The elements in the soil the plant feeds upon are potash, phosphoric acid and nitrogen. The soil is rich when the plant can get these elements in sufficient quantity, therefore every crop raised draws largely from these elements and must be replaced by natural or artificial fertilizers for profitable producing purposes. But various crops draw upon these elements in different proportions, and one element may be exhausted while the others remain, but in less quantity. To determine how much a resort to experiments is necessary, or the farmer must get a chemical analysis of the various food plants raised upon the farm in which case he can determine how much of each element has been taken from the soil and thus replace them with but little difficulty. Experiments are necessary, however, to determine whether the soil does not contain these elements in the right proportion, yet in an insoluble condition so that the plant roots can not feed upon them. It is often the case that different parts of a farm are in this condition and are condemned as poor and worthless, when, in fact, they are rich in plant food, only the plant elements are so combined with other element that the plant can not appropriate them as food. When such conditions exist the soil can be made productive in various ways. By good drainage which will allow the air to penetrate the soil and assist to decompose it. Land plaster will liberate the potash. Lime and common salt will improve the condition of the soil. Rotation of crops has great influence in making the plant food available. Good tillage is another method. Still another is the raising of clover and plowing it under.

I have been experimenting for some time with the natural and artificial fertilizers, but in a limited way with the latter on account of cost. Natural fertilizers are the best, and we resort to the artificial only when we do not have a sufficient quantity of the natural.

The chief commercial fertilizers are sulphate of potash, murate of potash, phosphate of lime and nitrate of soda. There are, however, many other brands, but those mentioned I have used with good results. It requires experiments to determine the quantity of each to be used for a particular crop. All farmers are able to conduct these experiments intelligently. But little knowledge is required. By so doing an intense interest and love of agriculture is created. It is fascinating when intelligently and systematically pursued. It gives better and broader views of the work and impresses one with its dignity, and where before the experimenter found only drudgery, he now finds knowledge and beauty. Advancement in agricultural knowledge is thus secured.

If at first the experiments are conducted on a small scale the cost will be small, and the results remunerative when applied on a larger scale. It takes care, time and patience, but in the end the credit side of the ledger will be the larger. We may determine something of the fertilizer needed by observing the growing and ripened plants. If the stems are weak and the color of the seeds pale potash is needed. If the seeds are not well developed for insufficiency of the sugar and starchy part, phosphoric acid is needed. If the stems and leaves do not fully develop nitrogen is needed.

Of late in my garden I have used sulphate of potash, nitrate of soda and phosphate of lime, 1 pound each of the first two and 2 pounds of the last, well mixed and sown broadcast on a square rod, just before planting. A change is made in different proportion with these fertilizers in planting peas and beans, using 13 pounds to the square rod—6 pounds of the sulphate of potash, 1 pound of the nitrate of soda and 6 pounds of the phosphate of lime. These fertilizers should be well worked in the soil by rake or harrow before planting. By mixing these with equal parts of dry soil and used in drills made for the seeds much less of the fertilizer may be used with as good results, especially where barn yard manure has been plowed under.

My meadows are divided into three fields. On one I used last year 100 pounds of nitrate of soda to the acre, and the yield of hay was $2\frac{1}{2}$ to $2\frac{3}{4}$ tons to the acre. On the other two fields I used only 25 pounds each to the acre of the nitrate and murate of potash and the yield was 1 4-7 tons to the acre. I would like it if the same number of pounds could have been used on the last two as on the first, but the pocket-book forbade.

On the corn fields I used 25 pounds each of nitrate and murate of potash to the acre, mixing it with an equal quantity of dry soil or road dust, and drilled in at the same time as the corn, using a fertilizer attachment to the corn drill. I am confident I realized twelve bushels more of corn to the acre by thus doing. To produce the best results there ought to have been 75 to 100 pounds of fertilizer used.

In growing potatoes I use nitrate of soda and murate of potash in equal quantities, mixed with road dust, scattering 1 quart of the mixture in the furrows made for the potatoes, for 85 feet of furrows, with excellent results.

In conclusion, let me say that my experience in farming so far is good drainage, good preparation of the soil, good tillage and a judicious rotation of crops, the raising and plowing under of clover and other leguminous crops, and an intelligent saving and using barn yard manure. This is far more economical than depending entirely upon commercial fertilizers, which are costly and not entirely satisfactory because of sufficient knowledge and experience in their application. If we neglect the above we must resort to the fertilizers or fail in producing paying crops.

CATCH CROPS.

By Wm. C. Gillson, Lis.

Mr. President and Members of the Jasper County Farmers' Institute:

There has been assigned to me what at first view may appear a matter of small importance, but when looked into is a very important subject, namely, "Catch Crops."

By catch crops, as I understand the term, is any crop that may be planted or sown on land where there has not been put in a regular crop from late or wet season, or from any other cause, or a second crop that may be put in after a regular crop is taken off. I think it may be termed a catch crop when put in with some other crop—as cow peas, rape, rye or timothy put in among corn at the finish of tending corn.

Among the most generally recognized catch crops in this country is buckwheat, which may be sown late in June or July, and sometimes makes very heavy crops and is generally saleable at fair prices. I have had no experience

of its feeding value, but from the analysis made by Prof. Henry, of the Wisconsin Station, its fattening properties are very high, though by long use it is liable to cause skin disease in animals being fed with it. It is, I think, very exhaustive to soil when allowed to ripen, but is perhaps a renevator when turned under while in bloom.

Another very important crop that I think may be considered a catch crop is the cow pea. It will bear planting when too late to expect to raise sound corn, and I have found these peas to do well sown broadcast in early corn, just before the last cultivation of the corn, making under favorable circumstances 10 to 15 bushels per acre. The way I would harvest peas in corn would be to turn hogs on them and let the hogs take corn and peas together. Two years ago I fed off twenty acres or more in this way, the waste in grain being surprisingly small, and even in the past fall, as wet as it was, but little was wasted. Another thing in favor of the cow pea is, it is a renevator of the soil, being an air feeder of something the same nature as clover, leaving more nitrogen in the soil than it found there.

Another crop that I think may be used as a catch crop is rape, which may also be used as a regular crop. It may be sown on fairly good ground with oats, two or two and one-half pounds of seed per acre. It will make but little show at harvest, but in a growing fall, like last fall, makes a fine growth and affording fine feed for lambs, pigs and calves. As a crop to itself I had four acres sown on July 25th, and sown over later when I thought I did not have a stand, and it made a very fine crop. Small pigs, not weaned, used it from the time it was six inches high, and did well on it. I had between 70 and 80 sheep on it more weeks than I would like to tell of to this company, and it, in connection with a little grain, made the fattest sheep I have ever had. It is essentially a sheep food, but is liked by calves and pigs. Like clover, it is liable to cause bloat, and should be carefully started with. It would, I think, be very profitable sown in corn, after the last cultivation, to turn lambs on at weaning time. By so doing you use the lower blades of the corn, the rape, and, if you have lambs enough, every weed in the field. Rape requires good land—can't be too good.

Among other crops may be named kaffir corn, sorghum fodder, turnips, hungarian grass and millet. Of these I have had but little experience—none with some of them.

Other things may be used as catch crops, as rye disced in an oat or wheat stubble, and making a bite for stock late in the fall and early in the spring, or timothy sown with oats, or rye or timothy sown in corn, about the last of corn planting, making a bite for stock before pastures are ready to be used, and even if you have but little use for the bite these things will give, I think it will pay by having a little green stuff to turn under in the spring.

These few ideas are given more from the view of a stock man than of a grain raiser.

GROWING AND CURING CLOVER.

By William Hutchison.

As to the manner and time of sowing clover seed, no rule can be given that will apply to all sections of the country, nor indeed to a very extensive area of any one section, as the seasons and the climatic condition vary each year. Each farmer should determine by actual experiment on his own farm what manner of sowing is best adapted to his particular locality and condition of soil. My experience teaches me that if clover is to be sown on wheat (which is the custom in this section of the country) that it should be sown from the 1st to the 15th of March, moon or no moon. When sown at this time the alternate freezing and thawing of the ground renders it sufficiently porous for the seed to work downward to the proper depth to take root, while the action of the frost and early spring rains generally effects a sufficient covering of the seed to insure germination. When freezing and thawing does not, through lack of moisture, render the surface sufficiently porous to imbed the seed, it

is advisable to run a light harrow over the ground after sowing the clover seed, and to follow it with a roller which will compress the soil about the roots of the wheat as well as aid in properly imbedding the clover seed.

Clover seed may be sown as late as the middle or even the last of April, with more certainty of getting a good stand, providing the ground has either been plowed or disced, and thoroughly harrowed to form a good seed bed. After the seed is sown it should be covered with a light harrow, or better still, a weeder, in order to form a mulch on the surface to keep the moisture of the lower soil from evaporating. In case weeds should come up and grow with the clover let them grow till the first of September and then cut the clover and weeds and let it lay on the ground as a mulch to protect the clover during the winter. As to the quantity of seed to sow to the acre there is a great difference in opinion.

I usually try to get as near 7½ pounds per acre as possible, or eight acres to the bushel of seed. I think a great deal less would do as well, providing the seed is good and is sown evenly on the ground. There are a great many different kinds of grass seeders now manufactured and highly recommended for sowing all kinds of grass seeds, but I must say, after trying nearly all of them, that I have never found any equal to the hand. Of course you can get over more acres in a day with a seeder, but the chances are that you have done a bad job and have wasted seed enough to have paid a competent man to have sown it by hand and guaranteed it done right.

As a rule clover should not be pastured the first fall after sowing the seed. Occasionally this can be done without injury if the season is favorable. If there is a good growth and the ground so dry that stock do not tramp it too deeply, it may be pastured moderately without harm.

When a crop of hay is sought the field should not be pastured in the spring. As the extent of country over which clover is successfully grown is very large and the climatic conditions vary greatly, no definite time can be named when to cut clover for hay. The plant has reached its most nutritious condition when in full bloom, and this is the proper time to cut the hay crop, but as all the heads do not bloom at the same time, some allowance in determining the period of full bloom must be made on this account. As a rule the mower is put in the field when the first blooms are beginning to turn brown.

How to properly cure clover hay is a problem as preplexing as any the farmer has to contend with. When clover is in full bloom it contains about two-thirds of its weight in moisture, and it is necessary to evaporate about 60 per cent of its moisture before it is in proper condition to go into the mow or stack. In curing clover the preservation of the leaves is most essential for two reasons: First, their feeding value, and second, their important office in evaporating the moisture from the stems. When there is a rank growth of clover and the swaths are necessarily heavy, stirring and turning them is an absolute necessity, for a swath even in the most favorable weather would fail to cure properly. The upper part would become so dry that the leaves would be destroyed and the lower part remain so green as to spoil if stored away. If possible clover should never lay in the swath but one night after being cut. It should have a thorough stirring in the afternoon of the first day and another on the following morning as soon as the dew is dried off; with good weather it can then be put in the stack or barn in the afternoon of the same day.

The clover seed crop is one of the most important products of the farm, and when properly handled is perhaps the most profitable crop. The first essential to success is good judgment in the time selected for cutting, as the difference in the market value of clover seed is wholly owing to the respective differences in cutting and handling the clover afterwards. The heads should be permitted to turn black before the mower enters the field, as when seed clover is cut too early there is a green tinge to the seed which it retains, even though it is afterwards handled in the best possible manner. The fact that the plant is permitted to thoroughly ripen before being cut does not necessarily subject it to waste of seed in the process of cutting if the proper care is taken to cut only when the air is sufficiently damp. The seed crop should always be cut when the air is damp. A good plan is to begin at day-

break and continue as long as there is dampness enough to prevent the shelling of the seed. After cutting let it lay two or three days before raking, then take every possible opportunity when the air is sufficiently damp to rake it into medium size bunches that can be easily handled or turned over if necessary. The bunches should lie in the field a sufficient length of time for the straw to become partially rotten. There is no danger of injury by rains if the bunches are turned occasionally to prevent sprouting, but really benefited by several good rains. The action of the rain not only renders the hulling easier, but is the chief agent in imparting to the seed the purple color so much desired by buyers. To prepare clover for the huller the gavels or bunches should be carefully turned over the day before the huller is to do the work.

Great care should be taken to prevent shelling of the seed while loading on the wagon, and a canvas should always be laid between the huller and wagon to catch the seed that shatter in pitching off the load. There is nothing more important in growing clover seed than the matter of hulling and cleaning the seed. The farmer may sustain serious loss after all the work of raising, harvesting and caring for the crop is over, by having the crop hulled with a defective huller. I know this from sad experience in the last two seasons, by being compelled to have my hulling done with a grain separator and having at least one-third of the seed left in the chaff pile. If possible get a rasp huller made for the business and save enough over other kinds to at least pay the cost of hulling.

GOOD ROADS.

By B. F. Wyman, Sycamore, Ill.

The good road question seems to be one of the most difficult problems which the people of the country have to solve at the present time. It is a question in which all the people are more or less directly interested.

Owing to the daily enforced use of the roads by the people of the country, it is of much more vital importance to them than to the people of the villages and cities. The religious, social and financial relations of the people of the country are so intricately connected with, and so dependent upon, the condition of the roads for their success and enjoyment, that the question appeals most strongly to them, and the farmers of Illinois will heartily favor any plan for permanent good roads that does not entail financial obligations of such magnitude as to be out of all proportion to the benefits to be received thereby.

Since the commencement of the agitation of the good road question some years since, many meetings and conventions have been held, many plans suggested, resolutions passed (and in some states the legislatures have passed bills), all looking toward a solution of the important subject. Some have favored bonding towns and counties, some favor assessing the lands adjoining the roads to be built, while others, and perhaps much the larger number, favored liberal State aid, in connection with the towns and counties, for their construction.

In view of the fact that the construction of permanent hard roads is so very expensive, and the farmers knowing so well that they would have to so largely foot the bills, whether direct taxation, town, county or State aid was given to build them, have not as a class, and probably will not, lose their heads and vote ruinous taxation upon themselves.

That hard roads that will be good at all seasons of the year can be made, there is no doubt, but the cost of making them is appalling.

The price per mile given as the cost of constructing good roads, by those who have made a competent study of the subject, is from five to ten thousand dollars per mile, according to proximity of material. Roads nearby free stone quarries may be made at even less cost than five thousand per mile. At the lower figures let us see what it would cost the State of Illinois to make all her roads good roads.

Illinois has fifty-five thousand square miles of territory. In many places roads divide the sections, which would make two miles of road to each square mile of territory. If the same rule applied throughout the State it would make one hundred and ten thousand miles of road. That we may not over-estimate, we will reduce the amount by 35,000 and we still have 75,000 miles of roads in the State of Illinois, or enough to more than make three continuous lines around the world. To make every mile good at a cost of \$5,000 per mile would amount to the enormous aggregate of \$375,000,000.

To present the matter more forcibly we will take your own county of Boone, which contains approximately five hundred miles of roads. At same price per mile it would take \$2,500,000 to make good roads in Boone county alone, the interest on which at five per cent would make a yearly tax of \$125,000, or a yearly road tax for each township of nearly \$14,000. Is it any wonder then that such figures warn the farmers and taxpayers to move slow in the matter?

Good road enthusiasts who have tried to show that the enhanced value of farm lands and the lessened cost of marketing farm products and hauling supplies to the farm would pay the tax for making good roads, do not seem to have met with much success.

It is not because the farmers do not want good roads that they do not become enthusiastic for them, but because of the burden they would have to assume in paying for them. Even if one-half of the cost is assumed by the State the taxpayers have it to pay in increased State taxation.

Our common dirt roads are, the much larger part of the time, the best roads in the world. They are easy for horses, easier for wagons and carriages, and much easier for riders than gravel or macadam roads. What is the reason then that they are not better at all times—simply because they contain water. Water in some form is the sole cause of all bad roads. If, then, water is the cause of all bad roads, the remedy is simple; the water must be removed and prevented from running under or remaining on the roadway. The greatest fault of nearly all road construction is the lack of systematic drainage. Good roads can not be made where there is water, either dormant or flowing under the roadway very near the surface. In either case it comes to the surface by capillary attraction and keeps the roads muddy.

The water should be removed to a depth of four feet where possible by proper sized lines of tile laid on both sides of the roadway, which will remove all water before it can get under the road, and if the road is rounded the water falling thereon is immediately passed to the side of the road and thence into the tile, before much of it can soak in the road, except in times of long continued wet weather, and even then it does not get near as bad and dries out much quicker than before drainage. Where the land is considerably higher on one side of the road than the other, one line of tile laid on the upper side of the road will intercept and remove the water that falls on the higher land and in seeking its level passes under the roadway, and will be sufficient to make fairly good drainage.

If all the roads were subject to thorough drainage, there would be an improvement of one hundred per cent in their condition in all periods of wet weather.

From personal observation of the benefits of tile drainage of roads, I wish to emphasize this assertion: That the application of the funds annually raised in the towns for road purposes to a thorough drainage system would so improve the roads that they would be comparatively good at all seasons of the year, and unexcelled the much larger part of the time. Proper drainage makes gravel or stones last much longer and much more effective.

There may be places where natural drainage is sufficient, but such places are rare in Illinois. Thoroughly drained roads on low lands become good and dry very quickly after rains, while undrained roads on higher land remain muddy much longer.

The usual road tax if expended in drainage would soon drain all the roads, while the tax for hard roads at five thousand per mile would amount to \$1,249.60 for every farm of 160 acres, for one half mile on both sides of such road.

The following I quote from a paper, by Mr. Thos. S. McClanahan, city engineer of Monmouth, Ill., read at the State Farmers' Institute, in February, 1897:

"The farmer knows quite well that he needs good roads but at the same time he well knows that he will have to pay for them, while the lovers of pleasure expect to have their fine drives and pleasant rides on the wheel, on an excellent road made by other parties largely.

The road for the farmer so far as his financial interests are concerned is a thoroughly tiled road, one tiled with good outlet for each and every line of tile, then kept rolled instead of plowed, and left full width of sixty-six, as they are now laid out, and drained the entire width. This will be a good road ten months in the year, and every year get better and better by use such a road will cost about six hundred dollars per mile and no repairs only to roll when in proper condition for packing the soil."

Mr. McClanahan gives the cost for macadamizing with limestone, at \$4.448 per mile with a yearly outlay of \$528 per mile to keep in repair, and estimates that such a road would last twenty-five years at which time it would have cost \$17,160 per mile. He gives the cost of paving with vitrified brick at \$13,151 per mile.

Such figures multiplied by the number of miles of road in a single township, makes too serious a sum to be contemplated.

If the people will elect road commissioners who will learn or have learned that it is hopeless to attempt to make good roads without a thorough removal of all water, and that it is just as essential to keep the water from under the roadway to make a good road, as it is to keep it out of a cellar, in order to have a dry cellar, and that such work can be accomplished very rapidly under the present tax levy in many places. It would be a step in the right direction, and we would soon hear much less talk by interested parties about the "muddy affliction" of the poor farmer.

A new factor in comparison with hard roads.—It looks now as though a new factor was entering into the solution of the much discussed road question, and that electricity may yet play an important part in its determination.

Electric railroads can be built and equipped as cheaply or cheaper than permanent hard roads can be built. There would be a continuous income from electric roads that would more than maintain them, while stone or paved roads would require a constant outlay to keep them in repair. However good the roads when the mercury is below zero, a ride in a warm electric car is much to be preferred to riding in the open air.

Electric roads would promote and maintain a much greater social intercourse between the people of the country and those of the cities and villages, than has ever existed heretofore. People from the country could attend church and social entertainments as easily and comfortably as those living in town.

In the dairy districts of the State the products of the dairy could be carried to the railroad stations for shipment to the cities, delivered at creameries, cheese factories and other markets, without the discomfort to both man and beast, of the long, cold drives that have to be made daily, through the winter months, and the muddy roads of spring would be avoided, and at the same time a saving of expense to the dairymen effected.

Nearly all farm products could be marketed in the same manner, and supplies of all kinds delivered at the farm just when needed.

If every farmer in Boone county had an electric railroad running past his door, with a telephone connection with his neighbors, and the city of Belvidere, and the other cities and villages of the county, his lot would be an enviable one. He would have all the advantages and enjoyments of country life, and practically all of city life as well. While he would have none of the undesirable elements of city life, he could practically transact all his outside business from his office by his own fireside. His children could have the advantages of the best schools. It would force a solution of the question of the

centralization of the district schools of the townships. The children of the country would escape the hardships incident upon attending country schools in bad weather.

The advantages that would accrue to country life, from a well directed system of electric railroads are almost innumerable and would bring inestimable blessings to all participating in its benefits.

The laboring man of the city could go out in the country and purchase for a home, a five acre farm, as cheaply as he could buy a lot in town, and still attend to work in the city. On a five acre farm he could produce butter, milk, pork, poultry, eggs, vegetables, and all kinds of berries and fruits, in sufficient quantity to nearly support his family. Business and professional men with a fondness for country life could have a country residence and at the same time be convenient to their business.

We believe the time is not far distant, if not already at hand, when electric lines of roads will begin reaching out in the country from the cities and villages, and that they are destined to soon play a much more important part in the settlement of the great road question than we now imagine.

LEAKS, WHY STOPPED? FRAGMENTS, WHY SAVED?

By Henry W. Avery, of Belvidere, Ill.

On the last day of May, 1899, the entire country was startled by the intelligence that the Conomaugh Valley was submerged, a large part of the City of Johnstown was destroyed, that many lives were lost by the flood. What was the cause of this sudden, terrible destruction of life and property? Simply a leak in the banks of a reservoir. Does it need a philosopher to tell why that leak should have been stopped?

At the world's Sunday school convention, held July last, in the City of London, there were placed on the front of the platform railing, four wreaths, in memory of four delegates, viz.: Mr. and Mrs. E. R. Rundell, Miss Harriet M. Tower, and Miss Eloy Reeves, who, while on their way to the convention in the French steamer, La Bourgogne, shared the fate of nearly all of the six hundred passengers, one woman only, out of three hundred, being saved. What was the cause of this disastrous loss of life and property? Nothing more nor less than a leak.

Probably, it could have been stopped, as the collision of the French steamer with the British iron ship, Cromartyshire, was sudden and terrific, causing a big hole near the engine room; but, the common verdict is, that with due caution, it could have been avoided. Prevention is always better than cure, and much less expensive.

A few years ago, within a mile from this city, a man went with an open light into the wood shed, attached to a dwelling house. There was a sudden explosion, the room was in a blaze, and, despite the efforts made, the house and most of its contents, were consumed. What caused it? Only a leak in the oil can, kept in the wood shed.

Any school boy can tell why that leak should have been stopped.

One winter morning the occupants of a bedroom, adjoining the sittingroom, were found insensible, because of a leak in the coal stove, one of the doors not being tightly closed. How easy it would have been to have made careful examination before retiring.

You see upon the street corners a company of workmen with picks, bars and shovels, earnestly removing the earth as though they were prospecting for gold. As you approach them, unless your olfactory nerves are paralyzed, you need not be told that there is a leak in the gas pipe, which, if not stopped, may ruin the company and endanger the life of citizens.

It does not require the computation of a mathematician to decide that it ought to be stopped.

The lady of the house, upon going into the parlor after a severe night's rain storm, finds the ceiling discolored. Investigation showed that damage was done in the chamber above, and all because there was a leak in the roof. They do not have to ask a carpenter why that leak should be stopped. It is self-evident.

On the morning of Dec. 31, 1897, a prominent business man and official of Lee county was found missing. At the Sherman House, in Chicago, he sent back his resignation as clerk and recorder of the county, confessed his misdeeds, gave information of money left in his safe, and sent back to his family what little he had taken with him. He then left for Seattle, pawning his watch to pay his fare. He soon returned, was arrested, and sent to Joliet. His wife gave up her home and her jewelry, and, by the toil of her hands, provided for herself and two children. On Thursday of last week, in response to the wishes of his bondsmen and friends, he was liberated, as his services were much needed by his family.

What caused all this trouble? A leak, an abuse of trust funds. Why should it have been stopped? To prevent loss to those who had confided in him; to maintain his reputation as an honest man; to save himself from humiliation, and his family from suffering.

The damage of such a leak is not confined to the parties directly in interest, but it tends to destroy confidence in humanity without which all business interests suffer.

In riding from a farm house to the city, a few kernels of grain were seen by the road side, and a little farther on the amount of grain increased until a continuous line could be easily followed. A little in advance a farmer on his wagon, loaded with grain, was wending his way to market. And, when overtaken and his attention called to the fact, that through a leak in his wagon-box, he was sowing grain all along the highway, no argument was necessary to convince him that the leak better be stopped.

Five or ten cents per day for beer, cigars or any other useless unnecessary thing may seem to be a small leak; but, as small leaks sink big ships, so this leak will, very likely, if not stopped, increase in volume and force, necessitating retrenchment in the family supplies and the children's education, and possibly resulting in the loss of the farm or the home.

The insurance company is called upon to pay for the loss by fire of a new dwelling.

What caused the fire? Simply a leak in the chimney.

How much better it would have been if the builders had been more cautious and prevented that leak, when the extra cost would have been but little?

Why are so many of our American people broken down before middle life is reached? Why so much disease and pain? Why are the services of the physician so often demanded in the struggle to keep soul and body together? Is it not because of a leak in the system that regulates our living? the abuse of the good things designed for our use—injudicious eating and drink, disregard of comfort or care in dress, indulgence of unholy desires and passions? Whether this leak is or is not the result of heredity, it is doing its deadly work upon us, and, unless stopped, much greater loss will be entailed upon the generation that follow us.

Hearken! There is a sensation upon the street, and in private circles. Madam Rumor has it that Miss X was seen riding with Mr. B last evening, and they were going in the direction of Smithville. This is a reflection upon the character of Miss X. Upon investigation it is ascertained that Miss X was away on a visit to a sister at the date mentioned, and the rumor was not only false, but cruelly unjust.

What started this rumor? A leaky tongue—the most destructive of all leaks, and the most difficult to stop.

Intimately connected with leaks, like those above mentioned, and surely consequent upon them is the loss of fragments that are worth saving because they are valuable.

The greatest teacher and wisest counselor that ever lived upon this earth after miraculously increasing the five loaves and two fishes to an amount sufficient to satisfy the hunger of ten or fifteen thousand persons, said to His disciples: "Gather up the fragments that remain." Why? That they might preserve them as a foundation for the next meal? No! That they might sell them in the market? Verily not. Simply "that nothing be lost." This, in short, answers the question, why should fragments be saved? They are worth something, and having some value, should not be lost.

What are some of the fragments that we farmers, dairymen and citizens of various occupations are losing, but which if gathered up and put to proper use, would fill many baskets, feed many mouths, clothe many bodies and fill many purses? There are fragments of time, of material, of force, of energy, of experience, of opportunity, of equilibrium and of moral character. These are almost inseparable, and waste of one usually involves waste in the others. The engineer who puts on more steam than is necessary to insure his safe arrival at a given point at a required time, wastes water and fuel, also the wear of the machinery and the nerve power of the passengers. The person who loses a fragment of the early morning, the most valuable time of all the day, thinking he can recover it before night, generally fails in his calculation, for the late rising naturally causes irritability or loss of equilibrium, commonly called loss of temper, and results in harsh words to wife and children, of which he ought to be ashamed; neglect of Bible reading and family prayer, the most valuable preparation for a prosperous and happy day. A hearty devouring of the breakfast, involving an unnatural tax upon the digestive organs, and he experiences a general uncomfortableness during the entire day. The farmer starts hurriedly for the field, or the laborer for his day's work, and leaves behind some important article; a fragment of time is taken for the return and there is also lost a fragment of strength, of opportunity and of patience. People often complain for lack of time, saying: "I would have done this or that, would have been at such a meeting, or assisted in such an enterprise, but really I did not have the time to do it," when in fact more time than would have been required to do these things has really been spent in doing nothing profitable for either mind or body. Who of us can not look back and call to mind many fragments of time that have been literally lost, or even more than lost, because spent in a manner injurious to both body and soul? These can not, like the fragments of the loaves and fishes, be gathered up, or like earthly treasure, once lost, possibly be found again, for time once lost is lost forever, but the realization of the loss and its ruinous results may help us to guard against similar experiences in the future. We must in some way be brought to realize things as they really are before we will make any attempt at improvement. Some people are really dead so far as benefiting society or humanity is concerned, before they are conscious of it. They are like "Pat's turtle," which he brought to his mistress because he had often heard her say she was fond of turtle soup. He had cut off its head to make sure that it was ready for soup. While the mistress was thanking him for his thoughtful regard for her wishes the turtle twitched and quivered before her. "Why, Pat," said she, "I thought you said it was dead." "Sure, mam, and he is, but he is not conscious of it." It is often said that "time is money." In fact it often represents a value superior to money, for money can not purchase the least fragment of it. The startling cry, "millions of money for an inch of time," was made when even that small amount could not be secured. I think there are frequent attempts to crowd too much into the same space of time. Almost everything may be overdone. One thing at a time is about all any person can do well. The idea of having a book open for reading while your hands are upon the washboard or in the dish pan, or mixing the bread may appear well in theory, but it would not generally be well for the clothes, dishes or bread, neither is it conducive to scientific ploughing for the plowman to have his mind engrossed with other matters while his hands are on the plough. Literary or professional men may thus theorize, but a turn at the plough or the cultivator would very likely neutralize their theory. One of those theorists was one day passing where a lad sat upon his plough beam while his team was resting. The reverend gentleman thought the boy ought to be improving his mind as

well as resting his body, and said familiarly: "My son, would it not be a good idea for you to have a book to read while your team is resting and not lose so much valuable time?" The lad replied in yankee fashion: "I say, elder, would it not be a good idea for you, seeing time is so valuable, to take a dish of taters with you into the pulpit Sunday morning and pare them while the people are singing so that they will be ready for dinner and so much time saved?" The ridiculousness of the one makes more apparent the inconsistency of the other. It is not an evidence of lost time when a fragment is devoted to the necessary rest of body and mind, but the neglect to perform present duties at the present time, or the putting off until tomorrow what should be done today often results in the loss of fragments of time and fragments of opportunity. "A stitch in time saves nine." So there is a time and a season for the best accomplishment of whatever needs to be done, which if neglected, may require twice the expenditure of time and material. Fragments of time are often unprofitably spent in experimenting. Some people seem to have a passion for something novel. It is true that old methods have been and can yet be much improved, but to insure perfect safety it is as important to keep on the rails that are firm as to avoid the ruts that are getting deep. This is true in farming in particular, and the proving of new methods by experimenting had better, in general, be left to the State University.

There are also fragments of material that have value and are therefore worth saving. In the early settlement of this country, when the bars were of logs or slabs, covered with straw, the corn cribs of poles or rails, with no roof, and the straw piles were burned, persons from the New England states would often say that an Illinois farmer wasted enough to support an ordinary family. With later improvements this fragment wasted material has somewhat diminished in quantity, but it is yet much larger than it ought to be. The reason given for gathering up the fragments "that nothing be lost," indicates that the question as to whether it would pay financially, is not the only reason, but that a habit of saving, even though the material saved is of little value, is the practical lesson to be learned. The habit formed in our early childhood days in the New England home, not to put even a kernel of corn or an apple core into the fire, because that would be an entire waste of what had a certain value as food for the chickens or pigs, has had much to do with the prosperity of later years. It is well to remember the Scotch proverb: "Nony a snickle makes a snuckle." The question is often asked: "Why does not that man get along? He came here at an early day, always works hard, is seemingly prudent, has no apparent extravagant habits, but somehow he is always behind, never has any ready money, and his credit is much below par. Others who had less capital to start with have been more successful, have good farms, good buildings, and something added to surplus every year. What makes the difference?" There must be a leak somewhere, which if found and stopped, he may yet be saved from financial ruin. Let us try and help him find it. To do so we will make a friendly visit at his home. The good wife is busy and the children employed as their ages will permit. No extravagance in apparel or furniture is seen. The dinner is inviting and everything well arranged and well seasoned, and not unduly expensive. The only indication of waste being the enormous quantity of fragments left upon the plates. Whether this is the leak or not will depend upon what disposition is made of them. After dinner we go with the father to feed the pigs, while the boys are permitted to lose several fragments of time (if nothing else) in entertaining the hired girl, while she not too hastily clears the table and washes the dishes. In the swill barrel we find not only fragments of bread, pie and cake, similar to those left on the dinner plates, but whole loaves, perhaps a little stale, but just the thing for a certain variety of puddings, while the family, children and all, are enamored with the very erroneous idea that hot bread and fresh pastry only, are fit for human food.

It is no marvel that the pigs are in better health than the children, or that much valuable material that might have been added to the yearly savings is in a measure lost. Let us look for another leak, perhaps not in the same family. The father, mother and children go to the store for the purchase of

a few necessary articles. The merchant is very bland. Of course it is his business to sell goods, to be agreeable and attentive as much as it is the farmer's business to raise good calves and pigs, and get the best possible price for them. His goods are remarkably cheap, because bought at a bankrupt sale. He is careful not to tell them they are bankrupt goods. "They will soon be much higher; you had better buy your entire winter supply now." They tell him they have not the money for so large a purchase. "Never mind that," he says. I will trust you until you sell your hogs or grain, or until you get your factory dividends. With these and many other flattering words they are persuaded to run up a bill far beyond their expectations or real necessities, and then add thereto a few other parcels to gratify pride or to surprise their neighbors, all because they were so cheap, forgetting that any thing is dear at any price if not needed. Here is certainly a big leak; chickens counted before they are hatched; money spent before earned. Pay day coming whether pork is high or low, whether the factory pays a dividend or not. If debts are allowed to accumulate interest eats like a canker, and as sure as a small leak will sink the ship, large or small, so sure will the diversion of these fragments of material sink the farm, or the home. Carelessness in the care of buildings, fences or tools is another fragment of more or less value, according to the amount invested in them. The lack of paint to protect from the weather, the swinging of the barn door when it should be fastened, the opening of the gate just far enough for the wagon wheel to tear it loose; or leaving it open when it should be closed, to protect the crops; the omission to replace a broken or fallen board; the leaving of wagons and other implements exposed to the sun and rain, all of these and many more are fragments of value and therefore worth saving. The loss of material involves the loss of credit, of ambition, of hope, of social standing, and sometimes of reason and life.

The stock breeder and the dairyman need to be particularly guarded against the loss of valuable fragments. Cattle were prominent in the property of the antedelvians. A fragment was preserved by Noah, the increase from which soon covered the hills of Chaldea and the fruitful valleys of the Jordan. The patriarchs were rich in cattle. The breeders were not unskillful in management, when their personal interest could be promoted. The breeding of a particular kind or color has not perhaps had a rival since Jacob got even with his selfish father-in-law, whom he served fourteen years to get the wife of his choice, and who, he declared, changed his wages ten times. His scheming resulted in the increase of the white and red streaked only, which by agreement were to be his.

The inventions of man are not confined to this nineteenth century, although this may very truly be called an experimental period. This is evidenced by the desire of a Colorado breeder who is endeavoring to improve his herd by obtaining a cross between the Jersey and the American goat. He is satisfied that it improves the Jersey but is rather hard on the goat.

The improvements, however, that have been made since the importation of the various pure bloods, have added to the value of the present herds as milk producers and for beef, a very valuable fragment, estimated at about 35 per cent. That is a leak for the better. But good care as to management and feeding, with the master's eye ever upon his stock overseeing, directing and controlling in every department, is the only security against the loss of any of the fragments heretofore mentioned, especially is this true in the care of the dairy cows. Injudicious feeding and injudicious milking are very detrimental to good results. Whoever feeds, handles or milks a cow with profit to the owner must have perfect control of himself. It is not my idea of propriety that it is a woman's province to milk the cows any more than it is a man's province to make the bread or wash the dishes. Circumstances may justify either; but if the cows were consulted in regard to whom they would prefer to deliver their private possessions, I think they would decide for the women every time, because she usually neither swears nor kicks. No decent cow can discern any virtue in profanity, but she most certainly appreciates

kindness and human treatment. To secure the best flow of milk the same person should milk the same cow every time, uninterrupted by conversation or side issues.

There is one more fragment to which I will briefly refer, and that is the fragment of experience. Miss Experience is said to be a dear teacher, though many prefer to risk the expense and learn directly from her. The father who chews tobacco or smokes his pipe or cigar, remonstrates with his boy who follows his example, saying by way of argument, that he has seen the folly of it. The manly son considers the point not well taken and the argument worthless. He proposes to see the folly of it too. Jennie sees her mother absorbed in a book which she takes particular pains to keep secreted when not reading. If discovered, as it is likely to be if any mystery is connected with it, the dear mother informs her darling daughter that it is not a suitable book for her to read. Jennie prefers to be her own judge in the matter and spends midnight hours in poisoning her mind and ruining her soul with the vile, trashy novel which so delighted the mother. If either of these parents would have their children profit by their experience, they should first show to them by their practical reformation that they had profited thereby.

The conduct of these children is repeated by every person who will not accept and profit by the valuable fragments of experience, which have been obtained by others through years of toil and study, and is proffered to them without price. Our own experience in the past should be heeded and made valuable to us in our future plans and actions. Every employer considers experience valuable in the person he employs. If a person applies for the position of salesman, bookkeeper, clerk, school teacher, farm hand, or as Bridget in the kitchen, some evidence of experience is demanded before terms can be adjusted.

Therefore, I would say to all, strive to profit by such fragments of experience as you can obtain, that you may thus avoid the rocks upon which others have stranded, by stopping the leaks which have been the first cause of their ruin, and by saving the fragments which are valuable in securing prosperity and happiness.

"I went by the field of the slothful, and by the vineyard of the man void of understanding; and, lo, it was all grown over with thorns, and nettles had covered the face thereof, and the stone wall thereof was broken down."

Who has not seen the same thing? Nature, unmolested, soon brings man's work to naught. The law of dilapidation runs through the whole economy of things. You have no sooner completed your fine house than nature begins to take it down. You have scarcely finished seeding your field or garden before nature commences to thwart your designs. Thorns and thistles choke out the grain, weeds grow faster than roses; even the stone wall becomes an unsightly heap. The law of decay quickly follows the law of growth. The divine command, "Subdue the earth," though given before the earth had revealed its prodigality, was an injunction that must be heeded if man would reap the reward of his sowing. It requires a continuous contest. The leaks must be stopped in their incipency and the fragments must be saved in their entirety or the experience of the slothful man will be ours.

MARKETING PRODUCTS.

By W. J. Jutkins.

Mr. President and fellow citizens.—The rush and push of the business world has become so general that every business enterprise is being run at high pressure, and in the universal haste many fail, either from a mistaken idea of the essentials of success, or, inability to keep up the pressure. It is an old saying that in haste there is waste. And nothing is more evident than that this is true in the case of the farmer in the disposition of his crops. Grain is rushed into the market as soon as harvested; hay sold direct from the field,

when the only demand is from those who buy it for speculation. Stock is sold before they become mature to some other farmer who is willing to wait until they have consumed enough of the crop raised to insure a full price when it is sent to the market.

This rush and haste to get the farmer's crop into the market seldom pays, and frequently is attended with great loss to the seller. How to sell crops, as well as how to raise them is a part of the science of agriculture, which it is well for us to consider. Everything offered for sale by the farmer should be the best of its kind, fully matured and in the best possible condition, condensed so as to cost the least possible for transportation.

I am not going to speak of the packing houses or canning factories. Establishments which employ immense capital and hundreds of men, with the best apparatus for converting the produce of the farm and orchard into such forms as will be most convenient to handle, and secure the greatest profit to the proprietors or company, and at the same time giving the smallest possible price to the farmer who raises the raw material which forms the base of their operations. These establishments understand that by condensing the products of the soil, putting the greatest possible value into the smallest space, the cost of transportation and handling is much less and the profits consequently greater. And it is upon this principal I would advise the average farmer of this country to act. I will therefore call your attention to that method of condensing farm crops which can be engaged in by every farmer, with but little or no expense for outfit.

The time has come when it is important that the farmer, even of Illinois, should guard well the fertility of the soil, which by the continual system of cropping, now practiced by so many, is fast deteriorating. The addage of killing the goose that lays the golden egg has its counterpart in the manner of farming prevalent in this country. The system of tenant farming, where the tenant is obliged to get all from the soil possible, in order to pay his rent and support his family, is a system that is sapping the life from the soil and making it more difficult each succeeding year to raise a maximum crop, hence poorer farms and poorer farmers are the result. It is to be hoped that e'er long the people will see their great mistake and quit this prodigality of the greatest earthly gift to mankind. A soil rich in every element that contributes to the comfort and support of man, giving bread and meat and fruit to the millions who inhabit the earth.

In these times when the business of the world is conducted on the principal of small profits and minimum expenses, it is none the less important that the farmer should keep the expense account as small as possible. Always remembering that a penny saved is a penny earned. The transportation of the product of the farm is an expense the magnitude of which we can hardly conceive. But when we remember that there are nearly 160,000 miles of railroad in the United States, costing about \$10,000,000,000, employing more than a 1,000,000 men and that the greatest part of their tariff is from the products of the soil, we at least must agree that the railroad is a pretty big institution and costs lots of money to keep going. The possibility of reducing the expense of transportation may not at first occur to us. Corn worth twenty-five cents here at our home market, at the sea board is worth sixty cents, an expense of about 140 per cent. To reduce this expense and at the same time maintain the fertility of the soil is the object of this paper.

There are two varieties of farm products, those used as food for stock and those used as food for mankind. True men use many of the grains as do stock, but much of this must go through a process of preparation which can not be done upon the farm.

But for stock feeding, the greater part of the work of preparing can, and should be done upon the farm. The advantages of feeding the produce of the farm out to stock is very apparent and yet is much neglected by the greater part of the farmers of this country.

From the report of the Bureau of Animal Industry, for the year 1897, it appears that there are 3,138,849 less hogs fed in Illinois than in 1889. And of fattening cattle there are less than at any time since 1880.

Why this great falling off in the production of the two great meat producing farm stock, either of which can be raised easily upon any farm, and invariably pays a larger price for the grain consumed, when fed prudently and with a reasonable amount of good judgment than can be obtained in the open market.

Cattle feeding is, and nearly always has been, a profitable branch of farming. We will not attempt to give the results of the various experiments made at the Experiment Stations, but will point to the many who have made large fortunes by this industry. Time will not permit me to give an exhaustive paper on cattle feeding, this is not my subject, but it will be treated by others. A few essential points however, are worthy a passing comment. Careful selection of stock for feeding. Get beef cattle, not dairy, young not old, all of a kind, not part heifers and part steers, feed liberally, but not too much. An old feeder said to me that we must feed just one ear of corn less than the stock will eat up clean; don't depend on corn alone, other feed is equally good and a change of feed is beneficial. The saving in railroad freight on a car load of mature, well fattened cattle as compared with grain necessary to produce them is apparent and the addition to the fertility of the soil is an item of no small account.

If it were not for the terrible ravages of the hog cholera or swine plague, the feeding of swine would be among the most profitable branches of American husbandry. But this has held in check many who would have engaged largely in this enterprise. But here the common error of using corn exclusively, has been practiced and quite probable is a great cause for this terrible calamity and severe loss of stock and money.

Sheep are at present commanding a good deal of attention and at the present price of wool and mutton, they who have suitable places can do no better than investigate this branch of conducting farm crops. No stock is a more universal feeder than the sheep. Scarcely a plant, whether a weed or a cultivated plant that they will not appropriate, either for meat or wool. They thrive on the hills and grow in the valleys. Eat almost anything from buckberries to clover, rape, cow peas, millet, corn, soja beans, wheat, oats, bluegrass and green grass, in short, almost anything that grows, even to hickory sprouts, and utilized by these busy little feeders, and in return leave the best possible fertilizer upon the soil to stimulate a still stronger growth of food for themselves and their frolicsome little families. Unlike the beef cattle and hogs they yield a profit while you are keeping them. Cattle and hogs yield an income only when you sell them, but the sheep yields an annual income of wool, which goes a long ways towards the expense of keeping them.

The dairy interests although having been crowded to the walls by the so-called creameries and bogus butter factories, which regulate the market, by keeping control of the supply, by the addition of hog fat, beef suet and cotton seed oil, as necessity demands. In many localities the farm dairy can be run with profit, where good, gilt edged can be made. I would not advise a farmer to try to run a dairy in connection with feeding cattle for beef, the two do not go well together, but hogs do remarkably well as a by-product to a dairy.

I sha'll not omit the poultry yard as a very efficient and profitable means of condensing farm crops and yielding a continuous income. I am not going to give a treatise on poultry, but I am convinced that the care and feed used in a prudently kept poultry yard will yield a much greater profit than can be realized by selling grain in the market. We pay too much of our earnings to the railroad companies and middle men.

What we want is to feed our crops to stock, retaining on the soil the greater part of the plant food, thereby keeping up the fertility of the soil and thus enable us to grow more grain, to feed more stock, etc.

RESTORATION OF SOILS.

By J. B. Sweet, Martinsville, Ill.

When a doctor goes to see a patient, his first object is to diagnose the case.

The same with the farmer. What is the matter with his farm that it does not produce maximum crops?

Is it his fault or the land? is the question that must be solved by himself; and, when this question is answered, the next thing is the remedy.

The Rothamsted experiment station shows that there is latent fertility enough in the soil to produce an average of nine bushels of wheat per acre for forty-six consecutive years without any manure or fertilizer of any kind.

Mr. Roberts, of Cornell, in his book, "The Fertility of the Land," shows, by chemical analysis, that the first eight inches from an acre of land holds 3,053 pounds of nitrogen, 4,219 pounds of phosphoric acid, and 16,317 pounds of potash.

He then analyzed the second eight inches, and found, that taking a depth of twelve inches, he had as follows:

That the first twelve inches contained 5,084 pounds nitrogen, 5,121 pounds phosphoric acid, and 19,738 pounds potash.

Experiment in analysis at the Kansas State Agricultural College shows that the first twelve inches contained 6,660 pounds nitrogen, 3,762 pounds phosphoric acid, and 13,695 pounds potash to the acre.

The next two feet contained practically the same, and this, after twenty-five years of cultivation in corn, wheat and rye. I think our soil in this county will not fall much short of this in latent fertility. The average crop of wheat in the United States is fourteen bushels, and this is our average.

Now, this crop requires for grain and straw, thirty pounds nitrogen, ten pounds phosphoric acid, and fourteen pounds potash. Then, we have nitrogen enough in the ground to last 220 years, phosphoric acid to last 375 years, and enough potash to last 1,000 years.

Suppose we raise fifty bushels corn per acre. This will require about ninety pounds nitrogen, forty pounds phosphoric acid, and seventy pounds potash. Then we have enough nitrogen to last seventy years, phosphoric acid 115 years, and potash enough for 200 years. These amounts of plant food are now in the soil waiting to be called upon to support vegetable life.

Without the use of any fertilizer of any kind there is enough of this latent plant food in the soil to supply the crops, as given above. These are established truths—established beyond any successful contradiction, and being so, this question naturally arises, if there is so much plant food in the soil, why does land run down and become non-productive? The answer to this shows the wisdom of the Creator, for it shows that the plant food is not immediately available, except as to a small part of it. The nitrogen, phosphoric acid and potash is held in slowly soluble forms by combination with other chemicals.

The acid of the humus in the soil, the water that falls in rain, and the action of the sun, all slowly break up the combinations and make the plant food available for succeeding crops.

In new lands this action has been going on for ages, and a large amount of plant food is already in the best form for use, and crops grow vigorously. But, civilized crops and the destructive agencies of man soon exhaust this reserve supply of plant food, and the land runs down, becomes unfertile and unproductive, so that it takes a chemical analysis to detect the loss in potential plant food.

An acre of soil, one foot deep, weighs 3,600,000 pounds. Out of this the average crop of wheat takes about ten pounds phosphoric acid, which is so infinitesimal that it requires a scientist to find it. It can not be perceived by the average farmer.

The humus in the soil is used up faster by the action of the roots, rain, sunshine and wind than the potential plant food, and that is the principal de-

iciency in the soil of worn-out land. This being the case, the question arises, how can it be supplied? I say, burn nothing, not even weed seed—return it back to the soil for decomposition. Sow clover, and when it is at its best and has gathered all the free nitrogen from the air it can, turn it back into the soil, either through stock or directly with the plow.

Perhaps our soil is most deficient in nitrogen, as there is plenty of phosphoric acid and potash in it. Then we must use that grain crop for fertilizing that will gather the most nitrogen and make the most humus.

I have found that cowpeas gather more nitrogen and make more humus in three months, from May till August, than any growing crop in this country, and if turned under, then it furnishes good plant food for a fall crop. If drilled with a 1-horse power corn drill in corn, when laid by in July, or earlier, it gathers nitrogen for themselves and a surplus for the corn roots.

I prefer cowpeas to clover for quick returns; you can always get a stand, which is not the case with clover. If the late varieties are sown in May, and cut for hay, the roots shoot up and make a good pasture, or may be turned under, making humus for future use.

If the early varieties are sown in corn the last of June, they will ripen and make fine hog or sheep pasture, and the stock will not bother the corn while there are any peas. Peas can be sown with a wheat drill at the rate of three-quarter bushels per acre as soon as the grain is cut and will make a good growth, protecting the ground from the hot burning sun, which is very detrimental in July and August.

If farmers will turn their stubble under as soon after harvest as possible, and sow it to oats, forming a shade in hot weather, and a green mulch in fall, and a dead one in winter, they will find their land greatly benefited far above the expense of seed and labor.

The man who buys a complete fertilizer is throwing money away, for we know that the legumes will gather nitrogen for their own use and a supply for the use of coming crops.

If once we understand the latent fertility of the soil and the way it is made available, we can make a better use of it and supplement it more intelligently by adding the needed fertilizers and so grow maximum crops at minimum cost, at the same time making use of the latent fertility to the fullest extent.

This branch has too long been neglected.

We think that it is well demonstrated that clover and cowpeas supplemented by the manure made on the farm will maintain fertility for an indefinite period.

On farms where all the grains are fed to live stock, and the manure carefully saved and applied to the land, the land shows no deterioration in any way.

With our present light on the subject, depleting the fertility of the farm is useless and a crime against the future.

THE SOJA BEAN AND COW PEA.

By A. A. Hinckley, DuBois, Ill.

These plants belong to the leguminosæ or pulee family, which includes the clovers and many other deep rooted plants. They are becoming more and more appreciated in our end of the State for stock feed and their beneficial effect on our compact clay soil, which requires a liberal supply of nitrogen and humus to increase fertility and resistance of drouth.

Cow peas and soja beans are nitrogen gatherers, and produce abundant organic matter for making humus, their roots penetrating deep in the soil, and bring to the surface elements required by the grains and grasses, also make the soil more porous, thereby increasing its capacity for holding moist-

ure. They have been grown only in a limited way with us, and we have much to learn about their cultivation, harvest and utility. In the future development of the resources of our soil I think they will be a very important factor.

The cow pea is valuable for quick results; a crop plowed under or pastured with stock is at once a benefit to the soil; even if cut for hay or seed they leave the ground in better condition than before. If they are planted in rows and cultivated they are a sure crop, and the soil is left in better condition than if the seed had been sown broadcast. For hay they are difficult to cure and handle. I have had best results to let them lie after cutting just long enough to wilt, then put in cocks and let cure for a week or more, owing to weather conditions. The object of curing in the cock is to save the leaves. If left to cure in the swath and then raked, most of the leaves are lost in handling. Weight for weight, I understand that the leaves are as rich a feed as the grain, so that it is quite an object to save all that is possible.

I have heard of planting with corn to check the damage from the chinch bugs. The seed corn and peas are mixed and planted together. I have tried it two seasons on a small plat, about an acre, and think there is much less damage from the bugs and there are benefits in other respects. The peas interfere little, if any, with the growth of the corn, because the corn is a surface feeder and the peas deep rooted. If the corn is to be cut by hand the peas will bother some with the work, but the extra value of the fodder will more than offset that. If the corn is husked in the field and the stalks pastured, the additional feed will be considerable, besides giving the stock more variety of feed, which of itself is an advantage. Then the fertility added to the soil by the peas should be considered.

The soja bean is attracting considerable attention at present, and justly so. It is an upright grower, has no runners to tangle in handling, and makes more seed to the acre than the cow pea; the grain is one of the richest we can grow for feed. Analysis of the composition of grain show this in a forceable way:

	Per cent of Protein.	Per cent of Carbohy- drates.	Per cent of Fat.
100 pounds Soja beans contains.....	34.0	33.6	16.9
.. Cow peas	20.8	59.8	1.4
.. Corn	10.5	71.7	5.4
.. Oats	11.8	69.2	5.0
.. Wheat	11.9	73.7	2.1

Protein is the most valuable element of a feed; it furnishes material for lean flesh, blood, nerves, hair, the casin and albumen of milk, etc. By the above figures we see that in protein the soja bean is one-third richer than the cow pea, over three times richer than corn, and nearly three times richer than wheat or oats.

The carbohydrates are either stored up as fat or burned in the body to produce heat and energy. In these elements corn, oats and wheat are over twice as rich as the soja bean, while in fat the soja bean is again ahead of the others, being eight times more than wheat and twelve times more than cow peas.

The soja bean requires good cultivation to do the best on any soil; it will stand more wet weather and more dry weather than many other crops. The root growth is abundant—equal to any plant in that respect. The root tubercles are the large-t I have seen, but are not numerous. Probably after the bacterium peculiar to this plant is more diffused in the soil there will be more of the nitrogen produced.

If cut when in bloom or soon after, it makes a rich hay, which is relished by the stock. Like the cow pea, it is hard to cure. When harvested for the

seed it can be stored in the stack or bin without loss from rats, mice or weevil. Care must be taken when put into bins to see that they are perfectly dry or they are liable to heat.

The depredations of insects injurious to grains and grasses may be more or less checked by a rotation of cow peas or soja beans, because their food will thus be cut off for a season.

Cow peas and dwarf soja beans may be planted after harvest, and produce a growth that, plowed under, will add much to the fertility of the soil. They are both splendid crops to grow for hog pasture. From my own experience I think sheep enjoy the soja bean better than any other stock. I would advise all who are interested in increasing the fertility of their land to give both these crops a good trial; do not stop with one planting, but continue to use them in rotation with other crops. I believe these two legumes will revolutionize the farming interests of Southern Illinois. In them we have the means of securing cheaply two very important elements of soil fertility, humus and nitrogen, and at the same time bring to the surface from the sub-soil other elements of fertility.

I might add that the soja bean is good for table use; we like them.

ROADS.

By William B. Frew, County Surveyor, Mercer County.

The roads of the country are accurate and certain tests of its civilization. Their construction is one of the first indications of the emergence of a people from a savage state; their improvement keeps pace with the advances of the nation in numbers, wealth, industry and science.

Roads are the veins and arteries of the body politic, for through them flow the agricultural productions and commercial supplies which are the life-blood of the State.

Upon the sufficiency of their number, the propriety of their directions, and the unobstructedness of their courses, depend the ease and rapidity with which the more distant portions of the system receive the nutriment which is essential to their life, health and vigor, and without which the extremities must languish and die.

Roads, however, belong to that class of blessings, the value and importance of which are not fully appreciated, because of the very greatness of their advantages, which are so many and indispensable as to have rendered their extent almost universal, and their origin forgotten. We can only appreciate their full value by being placed where they are unknown.

The increase of personal comfort in traveling good roads is an important item in their consideration, but a very small one when we consider that without such facilities the richest productions of nature waste on the spot of their growth; the rich mines are comparatively valueless, and the means of intellectual, moral and religious culture are greatly curtailed.

Among those roads which do exist, the difference, as to ease, rapidity and economy of transportation, resulting from the various degrees of skill and labor bestowed upon them, is much greater than is usually imagined, particularly by farmers, whom they most concern.

Travelers and others, who have the means of knowing, assert that the common roads of the United States are inferior to those of any other civilized nation in the world. Their faults are those of direction, of slopes, of shape, of surface, and indeed generally, in all the attributes of good roads. Some of these defects are the unavoidable results of scantiness of capital and of labor in a new country, but most of them arise from ignorance, either of the true principles of road-making, or of the advantages of putting those principles into practice.

The value of railroads as the great means of communication between the distant parts of our great country can scarcely be overestimated, but the

greatest good to the greatest number, and the most universal benefits with the fewest accompanying evils, will be most effectually secured by improving the peoples' highways—the common roads of the country.

Before proceeding to an analytical examination of the subject of road-making, we wish to present a few thoughts on the advantages of good roads, which we think are unknown or overlooked by most persons.

One of the most remarkable consequences of improvement of roads is the rapidly increasing proportion in which their benefits extend and radiate in every direction.

Suppose that around some of our principal places of trade we conceive a number of concentric circles drawn, enclosing areas from any part of which certain kinds of produce may be profitably taken to the town, while from any point beyond each circumference the expense of the carriage of such articles would exceed their value. Thus the inner circle, at the center of which the town is situated, may show the limit in every direction, beyond which perishable vegetables or articles very bulky or heavy, in proportion to their value, can not be profitably brought to market; the next large circle may show the limit of fruits, and so on. Now, if the roads are improved in any way, so as to lessen the expense of carriage, the radius of each circle is correspondingly increased, and the area of each is enlarged in proportion to the square of this ratio of increase. Thus, if the roads are so improved as to enable a horse to travel twice as fast or draw twice as much as he did before, each of the limiting circles is expanded outward to twice its former radius, and embraces four times its former area. If the rate of improvement be three-fold, the increase of the area is nine-fold, and so on.

All the produce, industry and wealth which by these improvements finds for the first time a market, is, as it were, a new creation.

The number of travelers is governed by similar laws.

The deductions of theory are amply corroborated by observations of experience, and more than realized in the improvement of every old road and the opening of every new one.

If, by these improvements, the average speed of a whole country were doubled, the whole population of the country would have advanced in a mass, and placed their chairs twice as near to the fireside of their metropolis, and twice as near each other. If the speed were again doubled, the process would be repeated, and so on.

If the distances were thus gradually annihilated the whole surface of the country would be, as it were, contracted and condensed; and yet by one of the modern miracles of science wedded with art, every man's field would be found not only where it always was, but as large as it ever was, and even far larger, estimating its size by the increased profits of its productions.

In treating of the subject of road making we propose to consider it under the following heads:

1. What roads ought to be.
2. Their location.
3. Their construction.
4. The improvement of their surface.

Roads should be so located and constructed that goods and passengers can be transported from one place to another in the least possible time, with the least possible labor, with the least possible expense.

The nature of the country over which a road is to pass and other circumstances may render it impossible to reconcile and unite in one combination all the conditions necessary to the construction of a perfect road, but we should endeavor to approximate as nearly as possible to an ideally perfect one. We will therefore investigate what roads ought to be:

1. As to their direction.
2. As to their grades or slopes.
3. As to their cross section.
4. As to their surface.
5. As to their cost.

First, as to direction, every road, other things being equal, should be perfectly straight; so that the time and labor expended in traveling over it should be the least possible.

All unnecessary length causes a three-fold waste; first, of the money expended in making that unnecessary part; second, of the expense of keeping it in repair; third, of the time and labor in traveling over it.

When we come to speak of the grades of the road we will try to show the necessity of their being as level as possible.

As a road can in few cases be at the same time straight and level, these two requirements will often conflict; in such cases straightness should always be sacrificed to obtain a lighter grade. This important principle is often violated in laying out or in improving a road.

A good road should always wind round the hills instead of running over them. This can often be done without materially increasing their length. The homely illustration of "The bail of a pot being no longer when lying down than when standing up," clearly shows the truth of this assertion.

Even if the level and curved road were very much longer than the straight but steep one, it would nearly always be better to adopt the former; because a horse could safely and rapidly draw his full load, while on the other he could carry only a part of his load up the hill, and must diminish his speed down it.

As a general rule the horizontal length of a road may be advantageously increased to avoid an ascent, by at least twenty times the perpendicular height which is thus saved.

While we concede the propriety of laying the roads on the sectional or other subdivisional lines, which have been made to correspond with the cardinal points of the compass, as far as it can be done without detriment to the road, yet we are sure that the passion for absolute straightness is a great fault in the location of most of the roads in this country, and the evil is being perpetuated by the unwillingness of farmers to allow a road to run through their lands on a crooked line. They attach more importance to the squareness of their fields than to the improvement of their roads, never realizing how much more labor is wasted by them in traveling over these steep roads than would be in cultivating an awkward corner of a field.

Could this prejudice for nothing but straight roads be once broken down the advantage of good roads, even if crooked, be once seen, land owners would eventually adapt themselves to the circumstances, and by buying, selling and exchanging the fractions of land thus cut off, would soon have the boundaries of their lands fixed in the center of the roads.

Second. What roads ought to be as to their grades.

Every road should be as nearly perfectly level as is consistent with good drainage.

Horses traveling on a road not perfectly level spend a great part of their strength in raising the load up the ascent. When a weight is drawn up an inclined plane the force of gravity is the same proportion of the whole weight as the height of the plane is to its length.

If a horse is hauling a load of one ton up a road that rises one foot in twenty, he is compelled to actually lift up one-twentieth of the whole weight, or one hundred pounds, through the whole height of the ascent, besides overcoming the friction of the whole load.

The following are the results of experiments made to ascertain the increase of draft on different inclinations:

Calling the load a horse can haul on a level the unit, on a rise of 1 in 100 he can draw 90 per cent.

1 in 50, 1 degree, 9 minutes, he can draw 81 per cent, or 106 feet per mile.

1 in 44, 1 degree, 14 minutes, he can draw 75 per cent, or 114 feet per mile.

1 in 40, 1 degree, 26 minutes, he can draw 72 per cent, or 132 feet per mile.

1 in 30, 1 degree, 55 minutes, he can draw 64 per cent, or 176 feet per mile.

1 in 26 he can draw 54 per cent, or 200 feet per mile.

1 in 24, 2 degrees, 18 minutes, he can draw 50 per cent.

1 in 20, 2 degrees, 52 minutes, he can draw 40 per cent, or 264 feet per mile.

1 in 10, 5 degrees, 43 minutes, he can draw 25 per cent, or 528 feet per mile.

Inclinations, always injurious, are particularly so where a single steep slope occurs on a long line of comparatively level road. It is especially important in such cases that such slope be avoided or diminished since the load carried over the whole road must be reduced to what can be carried up the ascent. If, according to the foregoing table, a horse with a load on a slope of 1 in 24 can draw only one-half as much as he can on a level road, we can readily see the loss sustained by allowing a very short, steep grade in a long line of comparatively level road.

It is very important, also, never to allow a road to ascend and descend a single foot more than is absolutely necessary: if so, we have two hills instead of one.

From what has been said it would seem that a perfectly level road would be most desirable; but this principle must be qualified by the statement that there is a minimum, or least allowable slope as well as a maximum one. If the road were perfectly level in its longitudinal direction, its surface could not be perfectly drained without giving it such a rise in its middle as would render traveling on it uncomfortable, or perhaps dangerous. The minimum slope recommended by the highest authority among English engineers is 1 in 80, or 66 feet to the mile. The minimum established in France is 1 in 125, or an angle of about one-half degree.

Dr. Gillespie, of Union College, perhaps as good authority as we have in this country, concludes that the longitudinal slopes of a road should be kept if possible, between 1 in 30 and 1 in 125, never steeper than the former than nearer a level than the latter.

In the construction of the National or Cumberland road, built by the United States through Maryland, Pennsylvania and Ohio, the maximum grade allowed was 5 degrees, or 1 in 11 on that part of the road east of the Monongahela river; from that point west the maximum was $4\frac{1}{2}$ degrees, or 1 in about $13\frac{1}{2}$. We must remember, however, that the road referred to was made through a mountainous country and that the maximum there allowed should be no precedent for us in constructing roads through the level western country.

We believe that by allowing occasionally slight divergence from straight lines roads can be made through this and adjoining counties with a maximum grade seldom exceeding three or four degrees, and should never exceed five degrees.

Third. What roads ought to be as to their cross section.

1. The width of the road.
2. The shape of the road-bed.
3. The ditches.
4. The side slopes of the cuttings and fillings.

1. The proper width of a road depends, of course, upon its importance and the amount of travel upon it. Any unnecessary width is injurious, not only from its waste of land, but from its increase of the labor and cost of keeping it in repair.

Usually when we speak of the width of a road we mean all the land between the fences which has been dedicated, condemned, or released for the use of the public as a highway—we use the term for that part of the road which has been graded and put in order for the use of travelers.

Generally the width and amount of land required for the different classes of roads is fixed by statute, while the laying out and working of the roads is left to the local authorities.

We think a great mistake has been made through the west in trying to grade up an unnecessary width of track.

(Here, give some examples of roads injured by too great width.)

As the metal or hard surface of the road is by far, the most expensive element in its construction, economy requires that the width be only such as will afford perfect security to teams passing each other rapidly. For ordinary country districts, fourteen feet would be ample; in some places it has been reduced even to nine feet, with entire satisfaction to the traveling public. In this case, the margin of the hard track is so prepared by heavy rolling and sodding that teams can pass each other without much inconvenience.

2. In forming the road-bed, or traveled part of the road, the first and most important point, in a flat country, is, to raise it above the level of the land through which it passes, so that it may always be free from water. All attempts at improvement are useless till the water is got rid of, and many a bad road may be transformed into a good one, by merely making ditches at its side so as to draw off the water that falls on it. Even if the water does not stand on its surface, if it filtrates from higher land beside it, and springs up under it, and is not well drained off, it will weaken the substratum of the road and render it liable to be cut into ruts by heavy loads passing over it.

On level ground and in cuttings, there should be a ditch on each side of the road.

3. The proper elevation of the road having been established, the shape of the road-bed at right angles with its length must be decided upon. It must not be flat, but must "crown," or be higher in its middle, than at its sides, so as to permit the water to rapidly run off into the side ditches. The usual form and that recommended by high authorities, is the segment of a circle, but we think this form objectionable, on earth-made roads, from the fact that in this method, a part of the road near the center, is so nearly level, as to have, practically, no drainage at all, the water softens the surface, which is soon cut into ruts, and more water will actually stand upon it than would on ground nearly flat. We would recommend two inclined planes meeting in the center of the road, with the apex kept as sharp as possible.

The degree of inclination of these planes will depend on the surface of the road being greater where it is rough. Its maximum must be limited by the inconvenience which an excessive transverse slope would cause to carriages, from their tendency to slide down the slope, and thus require the load to be continually drawn up an inclined plane.

The transverse slope should, however, in all cases exceed that of the longitudinal slope of the road, so that the water will run off at the sides and not pass down the length of the road.

On stone roads this slope may be as high as one-half inch to the foot, while on brick pavements, it can safely be reduced to one-fourth of an inch to the foot. On earth roads, such as we have in this locality, it may be safely increased to more than one-half inch to the foot.

On steep hill-sides, the transverse profile should be a single slope inclined inwards from the outer edge of the road to the face of the hill. The ditch should be on the side next the hill, and the water carried at proper intervals under the road to the outside.

Slope of sides of cuts and flues to be regulated according to quality of soil.

4. What roads ought to be as to their surface.

The two most essential qualities we would name are smoothness and hardness, both necessary to reduce to their smallest possible degree, the resistances of elasticity, collision, and friction.

Smoothness is not only essential to comfort, but even more so to economy of labor, of carriage wear and of road wear.

Carriages passing over a smooth road do much less damage than when it has hollows, into which wheels fall like sledge-hammers, each blow deepening the hole and thus increasing the force of the next blow.

Hardness is essential to the preservation of smoothness.

Friction, or the resistance which arises from the rubbing of the wheels against the surface with which they came in contact, will always exist, however the surface may be improved. Its two extremes may be seen on a road of loose gravel, and on a railroad.

The following is the result of experiments made with the dynamometer in testing different kinds of road surface.

Taking the maximum load that a horse can draw on a new gravel road for the standard:

On the best broken stone road he can draw three times as much.

On a well made pavement of hewn stone, four and one-half times as much.

On the best stone trackways, eleven times as much.

On the best railways, eighteen times as much.

From this it is apparent how important is the condition in which the best made road is kept.

5. As to the cost of roads. A minimum of expense, is of course highly desirable, but the road which is the cheapest is not the one which has cost the least money, but the one which makes the most profitable returns in proportion to the amount which has been expended upon it.

To lessen the cost of the construction of a road, while striving to attain the attributes which we have found desirable, we should, as far as possible, so lay the road as to avoid the necessity of making high embankments, or deep excavations; the cuttings through the hills should just suffice to fill up the valleys crossed, and when no artificial covering is used, the line of the road should be carried over as firm ground as possible.

Having thus given, as we understand them, the attributes of good roads, the next most practical question to us is: How can we make the nearest approach to this desirable condition of the roads in our locality?

The first, and we believe the most effective means to this end is to educate the people in this line. Not until the mass of our voters know more than they do now of the principles of road building and maintenance will they be careful to place in office, men properly qualified for the responsible position of road officers, nor will men be found with the proper qualifications for such offices.

More care must be exercised in the selection of the routes over which roads are laid, so as to secure better grades. As this important principle seems to be either unknown or ignored under the present system, we see no remedy, except to secure by legislation a law or laws establishing a maximum grade, exceeding which no public road can be laid out.

A simple plat of the line of a road is not sufficient to determine the practicability of a route, but there should be also a correct, carefully prepared profile, showing the vertical line over which the proposed road is to be run, as well as a complete topographical representation of the country to be accommodated by the location of the proposed road, also plans and estimates of the entire cost of the road.

With these means, and the counsel and advice of an able, practical engineer, the road officers could be greatly assisted in the responsible work of locating or improving a road.

There is as much necessity for the establishment of the grade or slope of a road as there is for the establishment of the line on which it is to run. If this were done as a part of the laying out of the road, there would be much saving of labor over the present method, as all the work done could be applied toward the completion of the road, according to the original plan adopted, and so much work would not be done, again to be undone, as at present.

After the establishment of the line and grade of a road, the next important item is that of proper drainage.

On moderately level ground, where the space outside the graded track can be used for summer or dry weather travel, there should be, adjacent to the outer edge of the track, a ditch so made that teams can pass from the center to the margin of the road. The ditch should, however, be of ample capacity to carry off all rain that may fall on the surface. In many places great benefits may be derived from laying a line of drain tile under the center line of the graded track, or better still, one along each side of the track. But they must be deep enough to be out of danger of frost, and have a good outlet.

Owing to the scarcity and great cost of material suitable for hard surface on our roads, we will be compelled, for some time at least to do the best we can with the earth road, but we should strive to bring them to an established, proper grade as soon as possible, as it is a well known fact that the less the earth is moved after being settled, the better.

From the success that has attended the trial of a mixture of sand and clay, as has been done in the west part of this county, and in several of the southern states, I am inclined to think we might get a good, hard surface by mixing sand with our prairie soil or yellow clay. With thorough underdrainage, and the earth well settled by the use of a heavy roller, on a narrow grade, well crowned, we feel sure that with five or six inches of river sand added to the common soil we might secure a good road at a moderate cost.

From the "Office of Road Inquiry," in the U. S. Department of Agriculture, circulars were sent asking railway managers for information in regard to the supply of good road materials, accessibility, transportation rates, etc., along the lines of their respective roads. The replies contain suggestions and data of great value to many parts of the country.

The general spirit of the replies shows a willingness on the part of the roads to help in the work, several of them offering to deliver material at the actual cost of handling, charging nothing for transportation on short hauls.

It seems to us that the physical features of our county present natural lines for at least three permanent, good roads through the length of the county, one from Sherrard to Marston, one from New Windsor to Joy, and one from North Henderson to Keithsburg.

Of these routes, the middle one certainly offers exceptional advantages for a road of good grade and cheap construction.

Its proximity to the railroad should afford the lowest rates for transportation of material. By laying temporary side-tracks, between the regular stations, the distance to which hauling would have to be done with teams need in no case be more than three or four miles, and one half of it, two miles and less.

Were it possible to have a few miles of the best quality of road constructed in some most public part of the county, which would serve as an object lesson to the people, it would go farther towards convincing them of its advantages than all the arguments we can present in our institutes, conventions, or even through the press.

When people become convinced that a certain thing is good, they will have it. Where, as in the case of securing good roads, legislation is absolutely necessary, the people must be convinced or you will not get it, because legislators will vote the way their constituents want them.

Almost without exception, wherever the subject of good roads has been agitated, it has been met with strong opposition, chiefly from the taxpayers, who oppose it on account of the supposed increase of taxation necessary to their construction. Experience has, however, shown that without exception good roads have at once, upon their completion, enhanced the value of the lands contiguous or adjacent from 10 to 50 or even 100 per cent. In many localities taxpayers affirm that the rate per cent assessed on their property for good road purposes, has been diminished upon the completion of good macadamized roads through their district.

Although the expense of first construction may be heavy, yet when we recollect that a well constructed macadamized or Telford road has often been

used five, ten, fifteen, or even eighteen years without repair, it reduces the annual expense to a very small amount. Of course this will depend greatly upon the manner of construction and the amount of travel. The construction of such roads as we have described will, of course, require the expenditure of a great amount of money, and the next important and practical question is, how it can be obtained.

The different states in the Union have various ways of doing, or having the work done. In some instances state aid is afforded, in others, funds are raised and expended by the counties, while in many cases, as in a great part of this State, each township assesses and collects taxes which are expended in making and taking care of its own roads.

We are glad to see that old law under which a poll tax, that relic of feudal vassalage, was assessed, is fast passing from the statute books.

As to state aid, New Jersey claims to have been the first to have adopted that method, and their law, passed in 1891, is still considered a model in its operation.

Under that law an annual appropriation, with certain necessary limitations, is made for road purposes, which is distributed among the several counties by the governor and state commissioner, in the proportion prescribed by law.

One third of the cost of all roads constructed in the state is paid out of the state treasury, one-tenth by the owners of the lands fronting on or within certain distances of the line of the road constructed or improved, the remainder of the cost is paid by the county through which the road is laid.

When we consider that all permanent improvements, such as good, hard roads, are not made only for the comfort and benefit of those who use them at present, but for generations to come, it seems but justice that those who come after us should help pay for their construction. This can be done by counties or townships selling long time bonds, say 10-50s, which can readily be sold at par and bearing a low rate of interest.

After the heavy cost of construction, the expense for repairs will for a long time be so little that the present rate of tax paid will meet not only the expense of repairs and the interest on the bonds, but help to form a sinking fund with which to pay much of the original debt.

On the whole subject of the construction and management of roads, the consensus of the best authorities in all departments of the work seems to be about as follows: That all highway tax now levied upon taxable property and worked out by the owners thereof upon the streets and highways should be paid in cash into a fund to be expended for the construction and repair of highways under the direction of skilled road engineers and superintendents, who should be subordinates to a non-partisan commission appointed by the best appointive power in the State; the commission to be composed of men, as far as practicable, with a knowledge of road construction and maintenance, who are permitted to appoint a chief engineer of highways and bridges for the State, who would have the general supervision of the plans of all highway improvements. Subordinate to the State commission, there should be created, by appointment, a non-partisan county commission, with the same power in the county as the State commission has in the State, who should appoint a county engineer of highways, subject to the approval of the State engineer. All engineers should be appointed on account of their fitness, and hold office during the pleasure of the commission or their continued fitness for service.

The employment of convict labor on the roads is a subject which has been much discussed, having strong advocates as well as bitter opposers.

Without experience or investigation, the idea of using convicts upon works of public improvement is at first attractive and tempting, but grave questions are involved in it which are not yet well settled, nor likely to be for some time.

First. There is the competition with free labor.

Second. There is the doubt whether in the end, with all the expense necessary in transporting, providing quarters, guarding, feeding, rearresting those who escape, etc., there is any economy in the employment of penitentiary convicts.

Third. There is a moral side to the question. The presence of such a class in the community is not wholesome. It is dangerous to the young portion of the population and distasteful to all.

Many of the states, however, have laws providing for the use of this element of labor.

Such laws exist in North Carolina, South Carolina, New Jersey, Tennessee, New York, Kentucky, Iowa, Georgia, Virginia, Delaware, California, and perhaps others.

General Roy Stone, special agent and engineer in charge of road inquiry in the U. S. Department of Agriculture, after thorough investigation of this question in all its features, recommends that State prisoners should be employed wholly in the preparation of road material, and in places where they can be guarded and secluded as easily and cheaply as they can in the prison.

STATISTICS.

Total R. and B. tax of Mercer county, exclusive of district tax 1897	\$20,670 77
Total district tax 1897	6,799 36
Total railroad tax 1897	2,708 13
Total paid by the county for bridges 1897	2,821 52
Grand total expended for roads and bridges in the county in 1897	\$32,999 78

Total miles of road in Mercer county, exclusive of T. 15, 6., 941. Which gives an average cost per mile for one year of \$35.06. The total amount is 6 per cent interest on \$549,996.

SOME OF THE BLESSINGS AND NEEDS OF FARM HOMES.

By Mrs. I. S. Raymond, Sidney, Ill.

I think it was a wise and considerate thing for our Farmers' Institute committee to arrange an entertainment last evening that took us away from our farms and firesides.

A little boy of my acquaintance once said he wished they'd teach something in the Sunday school "besides the Bible, as they'd been teaching that ever since he could remember."

So occasionally at a farmers' institute we are glad to hear of something outside of our farms.

My subject today is the hackneyed one of "The Farm Home," and I must do the best I can to make it interesting, asking you to remember always the saying of the wise man, "There is nothing new under the sun."

Let us look upon farming as a good business, and let us realize and live up to the blessedness of our privileges. On the farm we are "close to nature's heart." We do our work faithfully. We plant and cultivate, but "God giveth the increase."

Surely these are the conditions in which life is at its best. We have the true home life. The family are all united in interest and in the work for the common good. The farm home should be a place where the father gains rest and strength for his labors; where the children feel that it is a safe haven of love and peace, and the mother finds her highest joy in knowing that she ministers to the happiness and comfort of all.

A business man, the father of little children, once said to me: "I would like to own and live on a farm, so that my children could have a real home. When I was a boy on the farm, home was not only the house and its in-

mates, but the whole place, with its associations of work and play, and the interest we always had in the growth of animal and vegetable life. My children will never have that feeling of ownership and kinship that my brother and I had with the colts and calves, the chickens, the pigeons, puppies, kittens, lambs and pigs; and they will know nothing of the pure joy of gathering the first fruits from trees and vines planted by their own hands, or the bliss of having a small garden, all their own, or of eating their fill of water-melons and muskmelons out in the patch where they grew.

Some of the best things in my memory are recollections of our games of 'hide and seek' and the 'good places' in which we used to hide; and I love to think of the low branch of the old Romanite apple tree which we were permitted to use as a horse; of the play-house in the empty crib; of the swing from the branch of the 'big yellow willow,' and of the houses we built in the branches of some young cottonwood trees, after the fashion of the people in 'Swiss Family Robinson.'

All the discomforts of the youthful days had vanished from this man's mind. He forgot how Jack Frost pinched his toes and fingers while he fed the slow-drinking calves their morning feed of milk. He did not remember how hard it was to weed in the garden when the days were long and hot and his back ached, and his "stubbed" toe smarted, and his clothes and hands and face were sweaty and grimy. He remembered only the joyous freedom of those days, when work was as play compared with the relentless toil of after years.

So we will count this the first blessing of the well regulated farm home. It is the best home for the children for several reasons. There is work to occupy hand and mind, and plenty of room for the working off of extra animal spirits in play time. The abundance of fresh air and the opportunity for exercise surely helps in the physical growth of the child. It is not so hard to regulate the associates of a child where the homes are some distance apart, and this as every parent knows, is something to be thankful for.

At this point in her reading Mrs. Raymond stopped and told simply and impressively the story of the homes of thirty thousand of the employés about the Union Stock Yards, who live "just back of the yards." Contrasting the homes in that unsanitary place, where the air is filled with smoke and soot with a possible home in the country where light and pure air and wholesome conditions should prevail.

The farm home, where industry and economy have sway, should be a home where abundance reigns.

Think what it means to have, without constant outlay of money, plenty of vegetables, eggs, poultry, butter, beef, pork, mutton and fruits of various kinds. I quote from an agricultural paper, the editor of which knows the value of money spent in a great city.

"The average farmer and his family live better in every way—have better food, better clothes and better social surroundings than does the family of the man who lives in a city on a salary of a thousand dollars a year.

"The progressive farmer of today lives in a style that is not equaled by the city man who earns two thousand dollars a year."

We all know that the educated farmer may feel that he is the social equal of any man, regardless of his means. Money is more apt to be the sole standard of social worth in the city than in the country.

We count the uninterrupted quiet of farm life a great blessing. The people on the farms are spared many useless interruptions. They have time, except in the rushing season of work, for quiet reading and study, if they are so disposed. Mind and nerves are spared the strain that is unconsciously on them when surrounded by the turmoil of the city.

Yet this very subject of the quiet of the farm brings us to the other side of the question. To many who are without resources within themselves, this very quiet, especially in the winter season, gets to be a dread monotony and they feel that they are deprived of everything enjoyed by city friends. The

loss we sustain in not being able to attend good lectures and concerts, hear good sermons or operas or fine dramatists, must be made up to us by the accounts of these things in the newspapers. If they are carefully read, and we can have the finely illustrated weeklies and monthlies of the present time, we do not need to feel so entirely "behind the times." The facilities for travel are now so good we can occasionally go to entertainments that can not be brought to us.

Too often the farmer's home is destitute of those things which tend to make life beautiful and endurable. In these days of cheap and pretty wall papers and cotton fabrics the interior of the poorest home may be made bright and cheerful. Plenty of good books and papers I consider a necessity. Some sort of a musical instrument, if possible. There are very many cheap indoor games which the whole family can enjoy during the stormy days and long evenings of a dreary winter. Flowers, indoors and out add greatly to the beauty of a place, and a well-kept lawn is a necessary feature of an attractive home.

I do not wish to speak in a fault-finding or dictatorial spirit. I understand that lack of means and time, sufficiently explains meager surroundings in many cases. If such must be the home let us still be cheerful and remember that "contentment is better than riches." If we can not have flowers let us rejoice in the green grass, that like the sweet air is free for all. If we must wear plain clothes, let us do it with a thankful heart and the beauty of a cheerful face. Happiness for all of us comes from within, and without the contented mind, no outward beauty can sweeten life.

It is best for all of us to have our "day of small things," then we can better appreciate our luxuries as they come in later years. Too many boys and girls leave the farm early, because there is such an endless round of work, and they have so few outings or pleasures of any kind. Relaxation is necessary for us all, if we would not grow stupid and indifferent. I would mention the lack of efficient help in the house as a drawback to the farm home.

The housework on a farm is more wearing than in town. There are usually hired men to board, milk to care for, the fruit to be put up in its season, poultry to be looked after, besides the regular routine of housekeeping. Too often the farmer's wife does this single handed, to the sacrifice of health and strength, and for lack of time to read and observe she is deprived of the intellectual development which she would enjoy. I speak only from observation. I have known only the brightest side of farm life myself. I have never had to board men, and I have seldom been without good help about my housework.

In many farm homes the improved implements and utensils that make cooking and housework easier are lacking. Surely the woman on the farm needs every possible appliance to shorten her hours of labor, and these things are now within the means of the average farmer.

Perhaps, I shall be getting outside of my province if I speak of the need of more and better social and literary advantages in the way of clubs, granges, singing classes, etc. These have their direct influence on the home, and all have their devoted advocates, who plead for them in public and private. With all these things on the way and with free rural mail delivery, almost an assured success, "Let us thank God and take courage."

THE FARMERS' HOME.

By S. Rose Carr, Lis, Ill.

The farmers' home, always important, has recently been recognized by our State Institute as of such magnitude as to warrant special attention, and at the annual meeting of the Illinois Farmers' Institute, held in February, 1898, an Illinois Association of Domestic Science was formed.

That was the commencement of this movement looking to the betterment of farm homes, and the beginning of an era of healthier, and consequently happier and more beautiful homes for the farmers' family is shown in the number of local branches of like import already formed.

"The object of these organizations would be, among other things, to arouse a general interest in the subject of domestic science, to come to a better knowledge of foods and their composition, the best method of cooking, and proper combinations for the best nourishment of the body; to study the sanitary conditions of our homes, and the connection between bad sanitation and disease; to study the architecture of farm houses, particularly the arrangement of the kitchen and its furnishings; to study the art of housekeeping and home-making, that the labor of the wife may be lightened, and that greater comfort may be brought to the family."

I shall make no effort to offer you a learned treatise, filled with scientific phrases, which, instead of making clear, would only serve to create confusion in the minds of many of my hearers, but instead I will try to state, in the plainest language, and in as concise a form as possible, a few of the many advantages to be derived from a better knowledge and application of the important rules which should govern the family in its daily life.

A woman once asked a physician the proper age at which to commence to train her child. "Commence with his great great grandfather, madam," replied this wise deciple of Esculapius—and he was right.

I wish I might impress upon the minds of this audience the imperative duty both parents owe to their future progeny and the absolute necessity of hereditary vigor, which is a debt we, as parents, owe to our offsprings, and for which there will come a day of reckoning, for "Whatsoever a man soweth, that shall he also reap."

The housewife of today has a double burden from which to escape. Not only has she her own ignorance to contend with, but also the result of the want of knowledge of a vitiated ancestry. Shall she falter because "The penalties of sin seem to bear most heavily on woman?" Surely not—but because of this truth, must she earnestly study her surroundings and do the best she can to maintain her own health and the health of loved ones dependent upon her knowledge and application of hygienic laws.

No deleterious gases must be allowed to generate and poison the atmosphere, for the air we breathe should be as pure as possible, and to insure this careful attention should be given to the ventilation of each room. Where no provision has been made by the architect for ventilation, the prudent housekeeper will use the windows and doors for that purpose.

Before I leave this point of my subject, I want to call your attention to the dense shade by which some farm houses are surrounded—a condition most favorable for the production of disease germs and a constant menace to health, which is only successfully combatted by the introduction of the revivifying influence of the sun's rays. Plant most of the trees some distance from the house and let those near the dwelling be of a dwarf nature. We all get too little sunshine, especially the female portion of the family, whose work keeps them most of the time confined to the house.

A word in regard to the danger to health, which is at times incurred by the drinking of water from polluted wells. The house well should be so constructed that impure surface water will not flow into it. If, in spite of care, the water becomes contaminated by the introduction of organic matter, we must boil it before drinking.

Most farmers are averse to spending time or money on flowers, and so are very remiss in the duty of making home attractive. What some very practical people designate as "only for show," has a great deal to do with the positive pleasure of living. Some one has said:

"For what as beauty here is now,
We shall as truth in some hereafter know."

In speaking of flowers in our homes I will say little of summer flowers, because the dearth of flowers is not felt in summer as in winter, and then most

farm homes have some flowers in summer. But I beg of you all to make some preparation for the enjoyment of flowers during the long winter months.

To those who have a plant room nothing need be said. Those who have a bay or an alcove window, or a window box are likewise fortunate. Still, those of us who have none of these helps may very successfully grow a few flowers, and in case nothing else is possible, a carrot basket, or a bunch of celery or parsley, growing in tin cans in the kitchen window, will prove both useful and pretty, and will give that touch of refinement so often wanting. In my judgment books, papers, music and flowers are as much in place in the farmers' home as elsewhere and unquestionably should there be enjoyed.

I have now come to the most difficult part of my subject—that of foods. For years I have studied the proper combinations of foods to make a "balanced ration" for my poultry and success has crowned my efforts to the extent that I am able to bid defiance to disease among my flock. For the past three months I have been studying from a scientific standpoint; the subject of food composition and methods of cooking, as regards its relation to the proper development and nourishment of the human body, and, my friends, I am appalled at my own ignorance of this, the most important problem we women have to solve. I feel myself culpable, and a few months ago could not have believed that an intelligent woman could be so ignorant as I was in regard to the duties pertaining to her own life work.

Prof. Atwater gives the following definition of foods and their uses: "Food is that which, taken into the body, builds tissues or yields energy," and "Is used to form the tissues and fluids of the body, to repair the wastes of tissues, is stored in the body for future consumption, is consumed as fuel, or in being consumed protects tissues and other food from consumption."

One would think that the nutritive value of food should depend on the amount of nutritive material which they contain. But this is not always the case. For instance, wheat is said to contain all the food elements necessary to supply nourishment to every part of the human body. Yet the only way wheat appears on the tables of the majority of our farmers is in the form of white bread, and thus served it loses most of its nutritive properties. I recommend that a trial be made of boiled wheat to alternate with the much used oatmeal, and that we use graham or whole wheat bread at times. A farmers' table should be supplied at all times with fresh fruits and vegetables of his own growing.

This article would be altogether too long if I should enter further into the details of the modern methods of cooking, so I will leave my hearers to study that question for themselves.

There are numerous books that help one in the study of domestic science, a few of which I can personally recommend: Home Sanitation, by Helen Richards; Chemistry of Cookery, by Mathew Williams; Chemistry of Foods, by James Bell. May be procured of A. C. McClurg & Co., Chicago.

If from any cause one does not care to purchase books, much valuable information may be obtained by procuring the farmers' bulletins, which are sent free to any address by the Department of Agriculture, which was instituted for the express purpose of giving information to our farmers on all subjects pertaining to our occupation. The following bulletins are especially helpful.

- No. 23. Foods, nutritive value and cost.
- No. 34. Meats, composition and cooking.
- No. 43. Sewage disposal on the farm.
- No. 73. A variety of topics, all of interest.
- No. 74. Milk as food.

These works, as well as a number of others will be sent to your address if requested.

This home work is comparatively young, but it is broadening and becoming more practical, and we hope each session more systematic plans and more thorough organization will be adopted, and that the effect of domestic science as applied to the farm home, will become doubly assured.

PROFITS OF VEGETABLE GROWING.

By W. W. Thomas. Makanda.

This is a subject on which a great deal can be said, but I shall only touch on a few points. It is always a pleasure for me to give any information that may be of benefit to farmers or fruit growers. Vegetable growing, commonly known as truck farming, has become a great industry in our country. Thousands of people depend on it for a living; some make only a living, others prosper in a remarkable degree. The man that is known as a hustler profits in truck farming; so does he in farming and fruit growing. A man in this day to profit at truck farming must be a wide-awake, up-to-date man; he must not drag along in the same ruts his father did, but must be ready to take up the new and improved varieties and methods that may suggest themselves from time to time. I do not mean by this that he should invest in anything before he is sure it is all right, for that does not bespeak a shrewd man. Growing the truck is not all it requires to profit; he must know how to dispose of it after it is grown.

We have a great many truck farmers, and there are too many who do not find a profit in their calling; they do not even hold their own, but go on down hill each year. I will tell you how you will know these people. Go about their places; you will find a small rhubarb or asparagus field grown up with weeds and unacquainted with applications of fertilizers. You will find, perhaps, large fields of potatoes, beans or cabbage so large that the owner is not able to give them the cultivation and attention he should; in fact, he never does the right thing at the right time. To hear him talk he expects to make big money, as does his progressive neighbor. He buys no manure, hardly takes care of it on his own farm, but usually sells it to his neighbor for money to pay his taxes. He does not even grow cow peas. He can be found in town most any day in the week loading, whittling dry goods boxes, talking politics and cussing the times. I am sorry to say we have a great many of these kind of men in my locality, yet we have men that are prosperous, and their profits come from growing vegetables. Right here I want to say that the best advice for growing vegetables profitably was given by the veteran and pioneer horticulturalist of southern Illinois, the late David Gow. The man who built the first hot beds in southern Illinois and who shipped the first tomatoes to market from this State; a man, who out of this industry, acquired considerable property and lived in plenty. He said: "Feed the plant and the plant will feed your pocket book." He bought manure by the car loads and phosphates in like quantities, and fed his plants. There is nothing so essential to growing vegetables as fertilizers. The man who would succeed must not be afraid to invest in this all-important commodity.

I will give you a few facts and figures: A neighbor of mine has two acres of asparagus and two acres of rhubarb. This season clear of all expenses he made \$300.00 on the four acres. He spent \$60.00 for manure, four car loads, about one car to the acre. He also cultivates thoroughly and uses good judgment in marketing. Those who did not properly fertilize and cultivate did not make so much.

Yet this is not a large income from these vegetables, as I have known them to yield several hundred dollars per acre. The crops just mentioned are ones that every truck grower should have, as they bring returns so early in the spring, at a time when you are the most in need of money. Like other crops, they yield a better income some years than others.

There are many conditions that govern this, but to be successful grow the same crops year after year. Do not depend on only one vegetable, but grow many kinds of vegetables. Some years one will not yield a large profit, but another year it may bring a handsome income.

I will tell you what another neighbor of mine has been doing with the Netted Gem musk melon the past two years. He has grown four acres each year, using one car of manure and one ton of phosphate on the four acres each year. This year clear of all expenses he made \$400.00, and the year before he made \$500.00 on the four acres.

Another man, not at my town, but a few miles south of us, made clear of all expenses on six acres of mellons, \$1,400.00. Of course there are many growers who make but little on the same crops. Earliness is an important thing in growing mellons, tomatoes, cucumbers, beans, cabbage, and like crops for market. There are conditions that may change this, but this is the condition prevailing at present and for some time past.

I will mention some facts that have come to my notice in tomato growing. This is, in my opinion, a very treacherous crop for this country, while some years it is profitable other years the most successful growers fail to realize an income. I have known \$500.00 per acre to be made on the tomato within the past twelve years, and \$350.00 per acre within the last five years. I could mention other crops with equal profits but time will not admit. There is good profit in growing vegetables under glass or in forcing houses for market during the cold winter months, or for early spring when very fancy prices can be obtained for them. Especially is this so when you have a good nearby market. It also furnishes pleasant employment for the boys during the bad days of winter. They can find work inside the forcing houses caring for the growing vegetables. And then to have fresh, crisp vegetables on the table each day during the winter is a luxury indeed.

This season sweet potatoes have been a drug on the market; never to my knowledge have I known them to go so low. Yet at 20 cents per bushel, the price paid at harvest time, with the enormous yield per acre of this season, there is more money in them than corn at 40 cents per bushel.

Vegetable growing, where it is properly carried on, is very profitable. It requires less land for farming. There is less money invested in real estate, and the returns for the money invested are usually very satisfactory. As good proof of the profits in vegetable growing as anything I may say is this: At one of the largest and most successful vegetable growing points in southern Illinois it is said that most of the growers are out of debt and have a bank account.

Farmers of Randolph county, in conclusion, let me say that I am glad of the opportunity I have had of meeting with you today. May your meetings continue to prosper and grow in interest. What gatherings should afford more pleasure for you and your families than to meet one another here socially, pleasantly and profitably for a few days each year? Farmers, make these occasions so that they will be long remembered by you as pleasant days, well spent.

PUBLIC ROADS AND WHAT SHALL WE DO FOR THEM.

By F. D. Voris, Neoga, Ill.

In this short paper I do not expect to cover only a small portion of the subject given me, but if I succeed in creating enough interest in the subject of bad roads to get the people of our State wakened up and thinking about it and aware of what they are losing in money, wealth and comfort every year by our present system of making bad roads I will have accomplished my object and will have hope of something better in the near future in the way of better public roads through the State and country.

We find our public roads much in the same condition and fix as they were in fifty years ago, that is, improvement of our wagon roads has not kept up with the mark of progress in other things, such as railroads, public buildings, schools, churches, farming, farm machinery, etc. While harvesting of small grain has passed through all the gradations from a reap hook to self binder or header, our threshing from tramping or flail to steam threshing machinery, weaving from an old spinning wheel and hand loom to a fine steel loom driven by steam or electricity, printing from an old hand lever press with capacity of 500 to 600 per day to a steam press with a capacity of 50,000 to 100,000 in the same time. But when it comes to wagon roads, it is the same old dirt road of fifty to seventy-five years age—almost impassable one fourth of the time, and a poor excuse for a road three fourths of the time.

After reflecting on these things the question arises, what shall we do or what can we do that will be practical for better roads and bring them up to the advance stage of the other things and surroundings.

In railroads for instance, the improvements during my brief business career of thirty years has been wonderful. The maximum capacity of a freight car thirty years ago was 26,000 pounds. Now it is from 60,000 to 80,000 and in some cases even 100,000 pounds. A freight train then consisted of from sixteen to twenty cars and now anywhere from twenty to thirty, making the net tonnage of a train now fully four times what it was then.

Freight on grain thirty years ago, Neoga to Chicago was twenty-seven cents per 100 pounds and now only seven cents per 100 pounds, a fraction more than a fourth of what it was then, and I am informed that the railroads are paying as large dividends as they did then.

Now when we come to look upon transportation and delivery to town from country our grain, hay, apples, hogs, etc., we find that it costs practically as much per 100 pounds or ton as fifty years ago, as our wagon roads are very little, if any, better than then, and frequently worse, the country having been settled up and fenced, confining our travel to narrow passages on dirt roads whereby it becomes badly cut up and at times almost impassable, when in the earlier days of the country we could scatter out and get around the mud holes.

Now there is no other way to do but to strike the center and pull through which can not be done a good portion of the year, which to a marked degree stops the whole business of the country, making the markets we would reach with our products bare and prices higher while the bad roads embargo is on, and the farmers can not reap any benefits of the price, the bad roads forbidding the movements of farm products to market, and the reverse when the weather settles and the roads become passable the farmer finds a glutted market; they all have been waiting and anxious to market their produce and all get there at once and meet disappointment in marketing their stuff. The changeable conditions of our wagon roads alone create either a feast or a famine in our general markets throughout the year which is a very unsatisfactory state of affairs, and if this is the case and our poor wagon roads are to blame for the condition every man, woman and child in America is interested in their betterment.

This being the case, what shall we do for our roads and how shall we defray the expense of building them? There is at the present time three practical wagon roads being built and one experimental, I think either of them worthy of our careful consideration, and some one of them being adapted to our main wagon roads and pushed to completion: First, or oldest, is the gravel road; second, the macadam; third, the brick or stone paved road; fourth, the experimental iron or steel paved road. Any of the above are far in advance in bad weather of the old dirt road, but none as good in fine dry weather, say probably one-third of the time, hence in building a paved road I would also have a dirt road track by the side of the same, that is I would not attempt paving the whole highway, it being very expensive and not as good as partly paved. Were I building a public road I would use vitrified paving brick, and would lay two tracks the width, or very little more than the width of the standard wagon used, and would lay well with good stone or steel curb and on a 66 foot road would lay them from 30 to 25 feet apart from center to center of pavement, grading the ground up nicely between the tracks for a dirt roadway, the two paved portions acting as a curb to keep the graded dirt in place, which it would do as it would only be traveled when in good condition and good weather. If there was not too much difference in the price of the steel curbing over the stone I would use the steel, which could be laid with a view of utilizing it as a street car line as well as a wagon road. The cars could be handled either by electricity or horse power and there could be switches put in every half mile or practical distances apart so the cars or faster vehicles could turn out and pass heavily laden wagons; also would have a bicycle path on outside of each pavement.

This being a public improvement, the State, county and individual being served by the paving of the road, I would think the cost of the same should be assumed in about the following manner: The State should pay about 40 per cent, the county about 50 per cent and the frontage 10 per cent, and if we have no laws to cover this kind of wagon road building throughout our State I think we should petition our legislature to enact a law along this line, as there is nothing that would tend more towards the prosperity of our State and enhance the value of real estate than a general system of good permanent wagon roads.

CORN CULTURE.

By W. A. Kuyler, at Washington Co.

Corn culture is one of the topics on which farmers differ more widely than any other industry, and justly so, for the soil on which corn is raised and attempted to be raised differs very much. A loose, fertile soil is the best on which to raise corn, and where it can be raised with greater chances of success than on any other, yet with thorough preparation of the soil and thorough and seasonable after cultivation, fair crops may be secured. The season has much to do with corn culture as well as preparation and cultivation. There is no amount of preparation of the soil will insure a corn crop, though the thorough preparation of the soil is of first importance. By this is meant good plowing, say six or seven inches deep; turn all the land; do not cut and cover, as is frequently done; harrow or otherwise thoroughly pulverize the soil so that the corn roots can freely pass through the soil. If the roots come in contact with large hard clods they will not pass through them, and the corn becomes stunted in its growth. This is the case when the land lies hollow; the roots will not jump the cavity or grow through it.

The best time for planting is usually from the 20th of April to the 20th of May in our county. The best depth to plant is from one and a half to two inches deep, according to the moisture of the soil. The ground should be compact on the grain so as to retain moisture and thus insure quick germination. When planted shallower than above mentioned it is liable to fail to sprout on account of the ground drying too quick, and on the other hand, if planted deeper, the failure is liable to be on account of the energy of the sprout being exhausted before reaching the surface, and if it should reach the surface, it is in a weak condition, and something very much to be avoided, and frequently affects the crop injuriously. After the corn is planted it is well to commence cultivating, even before it is up, by harrowing. This will usually kill myriads of weeds before they have a fair hold on the land, and a thing if once established in a corn field requires very much hard work to destroy, besides robbing the soil of plant food which our corn needs, and that very much, so much so that many fields of corn are a failure in consequence of its absence. I have seen corn planted which came up well, but received no after cultivation; they were entire to partial failures, though the season was favorable for the growth of corn the entire season. This was corn planting, not corn culture.

As to planting in hills or drill, I think that it is immaterial, so that it is not too thick. We fail as often on account of too many plants in a hill or having the hills too close together when drilled, as from any other cause. On one occasion when two fields of corn were about the same, time, soil and cultivation nearly the same, there was a great difference in the crops on account of the amount of plants per acre. The thinner planted produced more corn, stood the drouth better and consequently furnished more marketable corn per acre and in four rows of the thicker planted corn the drill got out of order and planted much thicker, say about two grains every twelve inches. On these four rows there was scarcely any corn at all.

As for cultivation, this depends on the kind of land. For ordinary post oak or timber land, I believe in the plow—something that will lift the ground and turn it over. Commence early, when corn has three blades; get close to the

plants, throw the ground from the corn, thereby giving the roots an opportunity to grow down. For moist soil, do not leave it in this condition long, but as soon as possible after the corn has grown a little taller throw the ground back. This furnishes a nice, loose bed of warm soil for the roots to get a hold in. If this is not done, seven out of ten times the roots will not get far enough from where they started to support and nourish the stalk and ear. I believe this method is good for any heavy clay land or our pond land or the blue water oak soil. But where the land is loose and does not become solid or compact after rains, any kind of cultivation will do that will keep the weeds and grass from robbing the soil of its fertility and moisture. By all means keep loose, clean surface, so as to retain the moisture. If we retain the moisture in the soil by a mulch of loose soil on top the corn roots will get moisture enough in any ordinary year sufficient to produce a crop.

On ordinary Washington county soil there is very little danger of cultivating too much; once a week till it is three to four feet high and later would not hurt, in my opinion. As to ridging or level culture, my experience and observation is to ridge. The rows at the last cultivation is the better way. The corn seems to stand up better and endure the drouth better when ridged than when level culture was practiced. On one occasion in particular where corn was worked with a double shovel exclusively and to my mind at the time was an ideal job, another field cultivated entirely with the plow, the plowed corn did not begin to fire so soon as did the piece worked with the double shovel. There was, in my opinion, very little difference in the soil or number of times worked.

In conclusion I will venture to say to raise corn it requires thorough tilling from plowing till the corn is four to five feet high. Do not let it lay too long between times of cultivation, for by so doing the ground gets hard and the roots get established near the surface. If then interrupted it is liable to prove injurious to the crop.

A TALK ON WEATHER FORECASTING.

By Charles E. Linney, Section Director U. S. Weather Bureau, Chicago, Illinois.

Attempts have been made to make forecasts of the weather since the earliest times. The book of Job contains many wise weather sayings, and the wise men of ancient Greece and Rome studied the winds, the heavens, the seasons, the planetary aspect to secure insight into the probable weather. In more recent times all sorts of weather predictions are found, based upon everything, from the goose bone or corn husk to the planetary aspect, or the results of a laborious system of averages, and running from predictions of a few days upward to weeks, months, years and decades in advance.

The United States Government, however, does not attempt to make long range predictions, nor in fact a prediction of any kind until the men to whom the work is delegated have gained marked proficiency as forecasters, through long years of careful study of meteorological conditions and knowledge, and hard, close application to meteorological work, nor until these men have before them accurately drawn, comprehensive, synoptic charts, based upon accurate meteorological observations. These observations are taken twice daily by trained men in the government service, and are made from instruments of the highest standard of excellence obtainable.

In an observation, and also in weather predictions generally, the barometer is probably of first importance. (See figure 1.) It is an instrument consisting of a long glass tube, such as I hold in my hand, one end of which is sealed, and, after being carefully filled with mercury, is inverted with the open end placed in a cup of mercury or cistern. The pressure of the air being exerted upon this cistern the mercury in the tube is sustained at a height of about 30 inches, the top of the column rising and falling as the pressure of the atmosphere increases or decreases. The pressure of the atmosphere changes constantly, for, although we ordinarily say that the pressure of the atmosphere is about 15 pounds to the square inch, it may fall much below this or sometimes go above it. The pressure of the air becomes lighter as we go upward, hence the column of mercury is also depressed, thus an ascent of about 1,000 feet will cause the mercury in the barometer to fall about one inch. Such being the case, and our weather bureau stations not being on the same level, we reduce the readings to

Fig. 1.

an established plane, the sea level, that one may be compared with the other and a synoptic chart of their readings may be drawn.

For the farmer or for home use a more portable and less delicate instrument is advisable, and as a suitable substitute for the mercurial barometer we have the aneroid barometer, such as I hold in my hand. (See Fig. 2.) It consists of a metal disk or cylinder and a few levers connected with a hand which moves back and forth upon the face of the instrument, thus showing in supposed inches of mercury, the pressure of the atmosphere. This is done by the pressure of the air acting upon the cylinder, compressing it as the air becomes heavier, or allowing it to expand as the air lightens in its pressure. If set properly it is a serviceable and useful instrument for the farmer, indicating the approach of storms by falling, or the approach of fair weather by rising, and the warning is usually from 12 to 24 hours in advance of the advent of either condition. If the fall is sudden and heavy, the storm is advancing rapidly; will probably be of short duration, but sharp and intense; but if the fall be slow, steady and of long duration, it is probable that the storm will last several days, clearing slowly. On the other hand, if, during the winter season especially, the barometer goes upward steadily and rapidly, a sharp cold wave may be expected, and if to an unusual height, it may be expected to last several days, warming up slowly.

Fig. 2.

Closely associated with the barometer and next in importance to it is the thermometer, with which you are all familiar. In the Government service we use a set of self-registering instruments, such as I have here, (see Fig. 3).

These consist of a minimum thermometer (at the top) for registering the low temperatures, and a maximum thermometer (at the bottom) for registering the high temperatures. In use these thermometers are mounted within a shelter (see Fig. 4) in the manner in which they appear before you, and record mechanically the lowest and highest temperatures which occur during the intervals of setting, usually each twelve or twenty-four hours. The setting is done by tipping up the loose end of the minimum until the little index within runs down to the end of the spirit column, while the maximum is set by whirling it upon its axle and thus forcing the mercury down to the current temperature of the air. These, along with other temperature instruments, are exposed in a latticed box or instrument shelter, to prevent the sun from striking them and to acquire the actual temperature of the moving air.

An additional pair of thermometers such as I have here (see Fig. 5) is also exposed in the shelter to constitute a hygrometer, or wet and dry bulb thermometer, and they are used to determine the temperature of the air (from the dry bulb) and the temperature of evaporation, from the wet bulb. In use the wicking about the wet bulb is moistened and evaporation taking place from it the temperature is lowered. Readings of the temperature made in this manner appear in our published report (maps and bulletins) under the head of "Sensible Temperatures," the theory being that the body, by its constant throwing off of moisture, feels the temperature shown by the wet bulb.

The lowering of the temperature of the wet bulb is caused by evaporation, and this is in proportion to the dryness of the air; thus, if it be raining at the time of observation the air is full of moisture, saturated, and no difference will be visible between the wet and dry bulb, while if a dry southeast wind be blowing on a hot summer day a difference of 5, 10 or 15 degrees may be noticed, indicating a very dry air. In this manner we obtain the dew point and also the relative humidity.

Fig. 3.

The dew point is that point to which you must lower the current temperature of the air in order that some of its invisible moisture shall be made visible, either as dew, fog, cloud, mist, rain, hail, sleet, snow or frost, all of which are visible forms of moisture. Dew, fog, mist, cloud or rain are formed when the temperature of the air is above 32 degrees; hail, sleet, snow or frost when the temperature is below 32 degrees. The dew point is an exceedingly simple thing—you have all seen evidence of it repeatedly; thus, if a glass of cold water be placed upon the stand for a moment or two moisture will gather upon the outside of the glass. People say the glass is sweating, but, as a matter of fact, no moisture has come through the glass, it is simply the moisture of the air which is condensed upon the outside of the glass by coming in contact with its cold sides, and if you could get the temperature of the glass at the moment that this condensation began to form you would have the dew point of the air.

To the farmer, especially if he be a market gardener, horticulturist, or grower of tender, early or late garden truck or fruits, the ability to determine the dew point of the air is of great practical value, since, to a very large extent, it indicates, if taken in the evening of

Fig. 4.

the day, the lowest temperature which may be expected during the night to follow. This is due to the fact that as the temperature falls and approaches the dew point dew is formed and latent heat is liberated, causing a rise in temperature, or stationary temperature for a time. Then as the air cools again by the radiation of heat dew is again formed, more heat liberated and so on throughout the night. In the fall and spring the careful gardener or fruit grower may thus take steps to save his crops, being forewarned, and by the use of fires, smudges, sprinkling, covers, or other devices cover and protect his plants or trees by shutting off radiation as much as possible and thereby prevent the formation of frost.

A simple manner in which the dew point may be obtained is to take a bright tin pail or quart bucket, and, after filling it half full with water, leave it out in the air until it acquires the temperature of the air, then insert a good thermometer and slowly pour into the bucket ice water stirring it well, as soon as the outer surface of the tin shows a slight cloud or moisture read the thermometer in the water and you have the approximate dew point of the air.

One of the pronounced causes of frost is air drainage, that is, cold air being heaviest flows down into the valleys on still nights giving frost, while the higher lands and hillsides escape, and hence it behooves the farmer to place his garden and orchard on inclined or high ground and to avoid the lowland; the "warm

Fig. 5.

valley" is often the very worst place in which to plant an orchard, or to raise an early or late garden.

The humidity of the air is the amount of moisture which it contains. Our readings are always given as "relative humidity," that is, the percentage of saturation, if saturation be considered 100 per cent. The humidity is in reality a variable or changeable quantity, according to the temperature of the air, warm air having greater capacity for moisture than cold. Thus at zero a cubic foot of air can contain but a half grain of water; at 32 degrees it may contain nearly three grains; at 60 degrees it may contain nearly six grains, and at 100 degrees it may contain twenty grains of water. An amount of moisture equal to 25 per cent of saturation at 80 degrees temperature would cause saturated air if the temperature should suddenly be lowered to 40 degrees, and visible moisture would at once result either as dew, fog, cloud, mist or rain.

As further illustration of what saturation of the air is and of the amount of water which the air will contain when saturated, I would state that if the air of a room 20x20 feet and 10 feet in height be saturated at a temperature of 60 degrees it would contain 3.3 pounds of water, or about three pints.

The movement of the air, which is called wind, is measured by an instrument such as I have here. It is called an anemometer. (See figure 6.) The

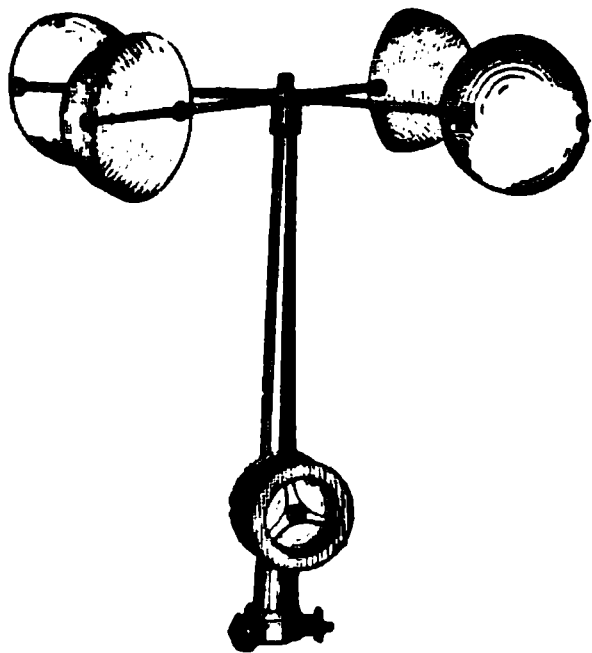


Fig. 6.

wind blowing against the cups spins them around and a record of the wind movement and velocity is made. About 500 revolutions of the cups are required to measure a mile of wind as the wind blows across the country. The movement of the cups is transmitted by a spindle and series of cog wheels to the dial on the face of the register, which records the number of miles blown.

The direction from which the wind blows is recorded by a wind vane very much like that in ordinary use on your barns, except possibly that in use by the bureau is larger, a little more accurately adjusted for position and more easily influenced by the wind. And in most cases our vanes are connected by electric circuits with a registering apparatus in the office

of the observer. The vane stands facing the direction from which the wind blows, and there is an intimate connection between the direction and force of the wind and the passage of storms, which I will explain presently.

The precipitation which falls as rain, hail, sleet, or snow is measured by an instrument such as I have here, (see figure 7) which is called the rain gauge. It consists of an outer galvanized tube about 8 inches across and 20 inches in height, which is called an overflow can, and, in winter, is used as a snow gauge; a top receiver or funnel which is also 8 inches in diameter and narrows down to a collar which drains the water into an inner brass tube which is slightly over two and a half inches in diameter. Thus, the water falling into the funnel and then passing into the gauge proper, is multiplied ten times in its volume. That is, if one inch of rain fell into the funnel ten inches would appear in the inner tube, or if one-tenth of an inch fell there would be one inch within the gauge, or if but one hundredth of an inch fell there would still be one-tenth of an inch within the gauge; thus it is easy to measure so small an amount of water, and if you will take a little cedar rule and make its divisions in tenths of an inch (instead of eighths and quarters) each tenth when used inside of the tube will represent one hundredth of an inch of rainfall.

You sometimes hear of a very heavy rainfall in which someone has a tub, or a bucket filled, or even at times a keg or half barrel, but these statements should always be taken with a large grain of allowance, for in truth, an inch of rainfall is a very heavy rain; it represents about 100 tons of water to the acre of land and means (as a usual thing) a good, heavy rainfall of several

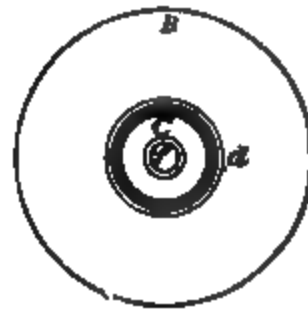
hours duration. Of course there are times when a cloud burst will give enormous quantities of water in a very short period of time; thus over portions of Henry, Knox and Stark counties on the 20-21st of last June 6 inches of water fell during the night, and a flood resulted all along Walnut creek, bridges were swept away, culverts, fences, barns, cattle, standing grain,

Front View.

Vertical Section.

Receiver.

Horizontal Section, B-B



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 INCHES.

SCALE.

Fig. 7.

trees, etc., were all carried down before the flood and great damage resulted, with the loss of three lives by drowning. Falls of this sort are, however, extremely rare in this part of the country, and our annual rainfall rarely exceeds 40 inches. In some of the more moist southern states (coast regions) and along the immediate coast line of Washington about 100 inches annually falls, while in the mountains of the Himalayas there are seasons when 600 inches have been measured, resulting in a barren waste.

Rain is due to the condensation of the vapor in the air. Evaporation from water surfaces, the soil, leaves of trees and other surfaces goes on constantly, even at very low temperatures, and the vapor rising is in time brought into cooler air, whereupon we have clouds. Minute dust particles are said to aid this formation, causing little globules of water; these are so small that the uprising air currents easily sustain them, but as they grow larger they overcome the buoyancy of the air and fall as rain. Clouds are mostly formed from the ascent of water vapor which cools by expansion and ascent; the beautiful white columns of clouds so often seen of a summer afternoon piled mountain high along the horizon are examples of this wonderful process. Warm air rising is cooler by its ascent a little more than a degree and a half for each 300 feet, and this cooling continues until the dew point of the air is reached, when clouds form. Thus if air is started at the surface of the earth with a temperature of 80 degrees and a dew point of 68 degrees, clouds will begin to appear when the vapor has risen to a height of about 2,500 feet, or about a half mile, and at a temperature of about 65 degrees. Clouds, however, are formed at various heights and are indeed among the most beautiful pieces of the Divine handiwork, for nothing is more beautiful than the fine

cirrus cloud strewn across the sky like a gigantic curtain of lace. These are the forerunners of foul weather, however, and when they appear, flowing in thickly from the northwest, there usually results a gradual lowering of the cloud masses for a period of ten to twenty hours until finally the clouds have fallen into an even dull gray and lies over the entire heavens and foul weather is at hand.

Evaporation, as I have suggested, takes place from all moist surfaces constantly. Free water surfaces, whose temperatures are the same as the air during the day are, at night, generally warmer, and evaporation continues at practically the same rate as during the day time, and this is true in spite the

Fig. 8.

dampness of the night. Evaporation is slow in the quiet of the dense forest shade, and in the clear, cold air of the winter, but does not cease, and it is said that snow and ice will yield vapor into the air without melting. From the ordinary land surface vapor passes off rapidly after a rain, but it ceases as the surface dries. It is thus very clear that a loose top soil is necessary to hold moisture, as it forms a dust mulch through which the water is not drawn to the surface and lost. During a drouth capillary ascent even largely ceases and evaporation becomes a minimum, with hard and parched surface. Evaporation, of course, is increased by plowing and cultivation, but when the surface soil is fine and a dust mulch is made this practically stops the evaporation. Plants, however, bring up large quantities of water, exuding it through their leaves. It is said that in this section of the United States nearly 60 inches of water annually arises by evaporation, and that Lake Michigan loses 22 inches annually in this manner.

We have also in use in the government service instruments for recording automatically the sunshine, some photographically, some electrically. We have, also, other registers, besides the eye observations of the sky for clouds, to determine their kind, amount and direction.

An observation, which is taken at 7 in the morning and 7 in the evening (central time), contains most of the elements of which I have been speaking. After recording the pressure of the atmosphere, the temperature, wind, weather, rain or snowfall, clouds, etc., the message is placed in cipher for transmission over the telegraph wires, which is done in a system of circuits. A cipher code is used, not because it is secret, but to give a very large weather message in a few words, and in this way we are able to give in a five or six-word message more of the weather than most people ordinarily see.

The reports being started over the wires are received at the larger cities of the country, like Chicago, Milwaukee, St. Paul, Detroit, New York, Washington, and many others, for the preparation of the daily weather map, and at three or four centers for the making of forecasts. Thus at Chicago forecasts are made for sixteen states and the entire Upper Lake region.

The cipher code contains some rather comical things at times. Thus I remember a message from LaCrosse which read: "All my ink frozen." This sounded as if the observer was in sad straits, but in reality it meant that the wind was south, 6 miles per hour, weather clear and temperature zero, while the Mississippi river, the depth of which is usually reported, was frozen over.

The daily weather map (see figure 9) issued by the weather bureau is a complete picture of the weather at the time of observation for the entire country. The circles which appear on the map indicate where the stations are, and give the condition of the sky, whether clear, partly cloudy or cloudy, or whether rain or snow is falling at the time. The wind arrows fly with the wind; the heavy black lines, or isobars, are drawn to connect points of equal barometric pressure, a line being drawn for each increase or decrease of one-

Fig. 9.

tenth of an inch in pressure; the lines decreasing from a point called "high" to a point called "low" and, finally, dotted lines appear for each ten degrees in temperature, beginning with the warm southern country they decrease step by step to the cold northwest. At one side of the map appear data tables, giving temperature and rainfall data, and beneath the map is a short discussion of the weather, with forecasts for a period of thirty-six hours, or until the evening of the following day. At times, also shaded areas are given over the face of the map to indicate rain areas, or areas marked rise or fall in temperature, as in the shaded areas to give rainfall on the maps herewith (see figures 8 and 9).

The weather is a progressive affair, moving eastward daily on an average of 400 to 600 miles, somewhat faster in winter than in summer. This progression taken place without regard to whether your wind locally blows one way or the other, and it will no doubt seem odd to you that the weather is progressing eastward when your wind is blowing strong from the east toward the west. This progressive movement of the atmosphere has been likened to a series of gigantic waves in which the crests were the "high" and the

troughs the "low." Another likening, and probably a better one, considers the atmosphere of the earth to be like a great river, moving eastward with great rapidity, which, as it encountered boulders and large obstructions, forms eddies (low's) which whirled about in a direction contrary to the hands of a clock, forming a suction into which the water was drawn downward, forced downward into its swiftly whirling vortex or center, while surrounding it a short distance the water thus forced downward boiled upward (high's) from the bottom, flowing out in every direction, but in the general direction of the hands of the clock. Such is the atmosphere of our earth or rather the bottom to the great sea of air at which we live; it moves eastward with great swiftness, storms form in the great river as it is forced over some obstruction or looses its equilibrium, a vast whirl ensues (low) and into the vortex the surrounding winds are drawn, bringing moisture and heat along the easterly side, with easterly, northeasterly and southeasterly winds, backing to southerly as the storm passes and going toward clearing weather, westerly or northwesterly winds and cooler air.

Thus, as the storm lies to the west of you, your winds turn to southeasterly, cloudiness ensues and increasing heat, with possibly rain, the wind blows harder as the storm center advances, but as its center reaches you (if it pass directly over your locality) a comparative calm follows, then as the storm moves on to the eastward the wind suddenly picks up from the westerly backing into the northwest, the rain ceases, the temperature cools and the storm center lies east of you, while you are in fair and cool weather with west or northwest winds, probably high for a time but gradually decreasing, and your barometer rapidly rises.

When the high pressure with its heavy, clear, cold air comes in the fall or winter it is intensified into the cold wave, and if of great intensity, may last for several days, slowly drifting south and east into the southern states causing devastating frosts.

My charts will show you quite well the progressive movement of the atmosphere, notice first that of the 15th of December, 1893, with its low area (storm center) lying over the north portion of Illinois and its series of regular barometric lines curving about the center and widening out toward the high pressure on the Pacific coast. Before the center of the storm to the northeastward notice also the cloudiness and rain extending out to the mouth of the St. Lawrence river, with temperature lines far to the north, and their abrupt trend southwest just past the storm center. Now turn to the chart of the following morning (figure No. 9) and notice that the storm center has increased in intensity (its center shows much lower barometer reading, with closer lines) and that it lies over Lake Huron, with rain area extending from the St. Lawrence valley southward to the Gulf of Mexico, while to the west the high pressure has advanced southeastward into the western part of Texas and overspread all of the lower Rocky Mountain region. It is thus the progress goes on, day after day, a series of high's and low's following each other across the continent.

The task which the forecaster in the Weather Bureau undertakes is to determine this progressive movements and the changes which will arise from the contour of the country. the many retarding or accelerating causes, the causes for increase in intensity, or the filling up of a storm, etc. He succeeds in about eighty per cent of the cases on the every-day weather, and in a far greater percentage in his forecasts of high winds, cold waves, frosts, northers, and other marked and unusual occurrences, or storms. And this is due to the fact that greater energy is usually developed or apparent upon the approach of these unusual conditions.

The usual daily forecast embraces a prediction for the weather, temperature and wind for the coming 36 hours, and these are supplemented by special warnings of high winds, gales, thunderstorms, severe local storms, frosts, cold waves, northers, blizzards, heavy snows, hurricanes, (the latter in the West Indies) and at times by predictions of the break in prolonged heat or cold periods. They are available to practically every farming community in the land, either through the mails or telephone or telegraph, messages by

telegraph being sent by the government without cost to communities where flags are provided and displayed for the benefit of the people. Flags for this purpose may be had from dealers in Chicago, Washington, and many other cities at a cost from \$5.00 to \$8.00 per set of five. * * * * *

We are often asked wherein does this benefit the farmer, or whom does it benefit? I recently had the pleasure of attending a convention of weather bureau officials at Omaha, at which more than seventy of our bureau gathered from all over the land (at their own expense) to share with each other plans, ideas, schemes and studies of our work and its advancement. Among them was Mr. John R. Sage, director of the Iowa Section, Climate and Crop Service. Mr. Sage said this question was often asked him when he spoke before farmers' institutes, and they would say: "Is it not largely for the benefit of commerce?" Mr. Sage says, in reply: "Yes, directly. It is, you might say, almost two-thirds or three-fourths for the benefit of our commercial interests directly—transportation lines and the commerce of the ocean, the lakes, the rivers, and transportation overland. The saving of wheat and grain on the great lakes, the saving of perishable products in transit overland on the railroads—all this directly affects commercial interests. 'Where does that benefit the farmer?' the farmer asks. 'Would we not be benefited by having five or ten millions of bushels of wheat sunk in Lake Superior or elsewhere, and thus lessen the overproduction?' But the farmer would not be benefited; he would be damaged. Every hazard there is on the line of transportation between the producer and consumer is at the cost largely of the producer. Every element of hazard in transit of the products of the farm is at the cost of the producer; ultimately the producer and consumer pay it. So you can see at a glance what classes are benefited by the forecasts."

It would be hard to say, however, whom we benefit the most; it is probable that all mankind receive benefit from the work of the bureau, the railroad man in his encounters with washouts, high winds, heavy snows; the merchant in his shipments of perishable goods and his special sales days; the manufacturer in lessening the dangers in shipments, in which may also be included the farmer, merchant, and in fact everybody who uses in any way the transportation companies; the stockman in our warnings of severe cold waves, northers, heavy snows; the market gardener in our frost and severe storm predictions; likewise the fruit grower and cranberry grower in our frost warnings; in short, almost the entire human family.

Furthermore, our work should be brought more into the operation of the farmer until he could have the benefits of our forecasts daily to aid in the protection of his stock from the coming blizzard and cold wave, the protection of his grain and hay in harvest, the protection of his fruits and gardens in spring and fall, the protection of his home and stock on the advent of severe and long continued cold and storm, and ultimately better knowledge of all the salient climatic features to aid in scientific farming, including in this irrigation, if need be, drainage, etc.

Many of our farmer friends, by close contact with nature and constant study of the weather, have become very accurate local weather prophets. It is an art that all may cultivate more or less. Nature has hung many signs in the heavens of the coming changes in the weather. Thus an ordinary wind vane, accurately placed, will afford many signs of approaching storms or fair weather. With the vane indicating easterly winds, a rise in temperature will surely follow and probably foul weather, for an area of low barometer lies to the westward and is approaching, so if the vane shows westerly winds the storm lies to the east of you, and fair and foul or colder weather is to be expected; if the vane go strongly into the northeast or east the storm lies to the southwest of you and is likely to prove one of high gales, heavy rains and nasty weather; on the other hand, if the vane is inclined to go round to the west through south and southwest it indicates that the storm is passing to the north of you and your chances for clearing and cooler weather are good.

The thermometer is also a valuable aid, for rising temperature comes before the storm and falling temperature after its passage. The clouds in their beauty often indicate far in advance the approaching storm, the beautiful cirrus clouds reach out far in advance of the coming change and give delicate

forewarning of it, for they move from the region of storm to that of fair weather. On the other hand the cumulus clouds (those vast mountains of beauteous white) are usually forerunners of fair weather, and, barring an occasional thunderstorm which may come out of them, are good harbingers of continued fair weather. So the sunrise and sunset will often tell a day in advance the coming changes, a red sunset with lowering clouds or hazy west presaging foul weather on the morrow, because the storm comes out of the west, and if sol's declining rays shine dimly through the vapory shield it is more than probable that water will be wrung out before the next sunset, while a golden and clear sunset is likewise a sure forerunner of a fair day to follow. So the solar and lunar halo are usually from 12 to 24 hours in advance of each change to foul weather, and the stars in their turn take on an unusual twinkle and excessive brightness through the increasing moisture of the air. And thus many beautiful and picturesque signs are daily hung before us of the coming changes. The domestic animals, fowls, birds, frogs, insects, all have their tale to tell of coming changes in the weather and it needs but a close observer to interpret the signs.

THE SILO.

A rhyme by H. D. Hughes, Antioch, Ill.

The Silo. What is it! How? When? Where and why?
 Is what I propose to discuss. But if I
 Should not make it plain by my manner of speech,
 At least I will try to keep well within reach
 Of what may pertain to the silo, in fact,
 Though what I may say will perhaps not attract
 Attention from those who in science delve deep,
 But plain, common farmers I still hope may reap
 A benefit equal to what it has cost
 To come here and listen. If so, nothing's lost.
 Now what is the silo? "A howl in the ghround.
 Sometoimes it is shquare, and sometoimes it is rhound,
 Which Oirishmin dig for a dollar a day.
 Where farmers shtore corn, and it turns into hay."
 So Dinnis explains. But Hans Dunder allows
 "Dot tings eas a parrel, wit kraut for de cows."
 And each in manner is right in the main,
 The difference whereof I will try and explain.
 A pit, or a building, for storing green feed,
 From which we can take, any time, as we need,
 A fruit jar, "en grand," as the Frenchman might say,
 From which the cows feast, from September till May.
 Now how shall we build it, and have it remain
 A profit producer, so that we may gain
 A greater return from our farms in cold cash?
 And not have to live on corn dodger and hash.
 The bottom begins with the good, solid ground,
 In form, to be perfect, it ought to be round,
 On which we should spread out a floor of cement.
 The wall should be stone, without furrow or dent,
 Till reaching the top of the ground. It should be
 Built strong, and cemented inside, for you see
 We want to exclude all the water and air,
 And unto this end we must labor with care.
 On top of the wall, in cement, lay your sill,
 On this stand your studding, and now if you will,
 Bend on half inch sheething upon the inside.
 Now follow with paper. You're not going wide
 Of what we would aim at. Now sheethe it again
 Inside of the paper—half inch stuff—and then
 The best of cement on your lathing is laid,

Your silo, at least on the inside, is made.
 Now sheethe it outside. But your roof overhead,
 And hope it may stand there intact, till you're dead.
 Now how shall we fill it? Some put it in whole,
 A very good way, I believe, on my soul.
 You don't have to purchase machinery then—
 An item in favor of poor renting men.
 And were I preparing to feed it to sheep,
 This manner of filling I'd certainly keep
 In sight, in my mind, till I'd tried it a spell.
 I'm sure I could feed it to them just as well,
 Or better, perhaps, than when it had been run
 Through cutter or shredder, as usually done.
 But when feeding cattle in mangers and barns,
 The cutter, perhaps, might prevent making "darns"
 Or dams—in your chutes when you throw down the stuff,
 Or talking in language that white men call "rough."
 I used a tread power and 15-inch cutter,
 To fill up my Silo, but here I would utter
 A soft note of warning to those who would buy
 A small "cutting box," for I tell you that I
 Don't think a feed cutter was ever too large.
 Its easy to see it will take a small charge,
 As easy as ever a small one would do it,
 The little one won't let enough stuff through it.
 A three-horse tread power, I think is the best
 For farmers to purchase. I'll leave you the rest
 To think of yourselves, or discuss at your leisure,
 For I should not like to encroach on your pleasure.
 Now when shall we build it? As soon as we can—
 Get money enough to pay cash for our plan,
 But don't go in debt for our silo and tools,
 Or someone will surely be calling us fools.
 And when shall we fill it? As soon as the maize
 Is ready. For we don't know how many days
 The rain may prevent us from putting it in,
 And then we don't know when the snow may begin
 To fly through the air with its frost-laden breath,
 That comes every fall, sure as taxes and death.
 When corn has passed out of that stage known as milk,
 The tassill has shaken its polen, the silk
 Has frowned, the kernel has turned into dough,
 A stage that all farmers so readily know.
 Then hustle the work, but you may, if you please,
 Heat up to a hundred and thirty degrees,
 Or forty, perhaps, would not do any hurt,
 If you will go on and fill up with a spurt,
 And not let it mould by too long a delay,
 'Twixt filling and filling, which thing doesn't pay.
 Now where shall we build it? Close up to the place
 You're going to feed it. Its plain on its face
 You don't want to carry the stuff very far,
 It's heavy; and should be near where the cows are.
 It weighs 40 pounds to the foot, and a cow
 Will eat 40 pounds every day you allow
 That much of the stuff to get into her reach,
 And thank you for more if you "fur stay" her speech.
 And build it up on the high side of the barn,
 Be there such a place, for you'll very soon "larn"
 That ensilage going down hill has its charms,
 But going up hill with the stuff in your arms,
 Will soon "turn the edge" of the best shoulder blade,
 And make you as sour as any old maid.

Now when shall we feed it? I stopped not at all
 From when we began to put in in the fall,
 'Till grass in the spring was so large and so fine
 That cows didn't care upon canned fruit to dine.
 Then there comes a time every summer, when drouth
 Destroys all the grass from the animals' mouth;
 And flies are so thick that it really costs more
 To feed and provide the bright blood for their store,
 Than housing and feeding from silos would cost.
 And last, but not least, no manure is lost,
 And profit would come to your coffers right then
 Where always a loss and deficit has been.
 Now, why have a silo? Why have it at all?
 On this must it stand, or on this must it fall.
 The fact or the fancy that shows not it's "why"
 I tell you is quite nearly ready to die.
 And will die I think. I think too, it should,
 For nothing should live that is not for some good.
 Now, why have a silo? The first point I think
 Is made by combining the feed with the drink.
 The juice of the plant is turned into effect.
 You know it don't take a great brain to detect
 The difference between green apple, when ripe,
 And one that's been dried and made tougher than tripe.
 I have eaten ensilage. That I can say.
 Now, tell me, my friend, did you ever eat hay?
 But laying all jesting and joking aside,
 The silo for years has been tested and tried
 And proven, beyond any possible doubt,
 To be the best manner of storing food out.
 It's better for man and it's better for beast,
 The flow of the milk and the money's increased.
 There's better digestion, and better repose;
 The owner thereof can afford better clothes.
 It costs you less money your fodder to store;
 You've more education, you know a lot more.
 Your children don't have to remain out of school
 To husk with cold fingers (a sign there's a fool
 In charge at headquarters), and then it is plain
 You save of that higher priced article, grain.
 Your stock is in better condition and health,
 A thing that's conducive of increase of wealth.
 You add to the size of your farm in this way;
 You can, by it's use, sell your timothy hay—
 That's not worth so much by a good deal as clover.
 (A secret that farmers don't know the world over.)
 You don't have to dig the stalks out of the manger;
 A thing by the way that might put you in danger
 Of swearing—you'd "never raise cornstalks again!"
 And "cuss" all the cows that there ever have been.
 And "holler" and pound 'em, and cause you to say,
 That "farming's a dog's life" and that "it don't pay."
 The silo, my friends, does away with all that;
 The cows eat up all, and you know where your at.
 You do your work up in the fall when it's warm,
 When the weather is dry, with no fear of a storm.
 Your boys grow up straighter, your daughters more fair,
 Your mind is relieved of a burden of care;
 Your wife grows the sweeter, more full of content;
 Your clothes are less ragged, your form is less bent;
 Your hairs are less gray, and your waist-band increases;
 Your fingers arn't sore, and your joy never ceases.
 You look your boys square in the eye and explain,
 How better it is on the farm to remain.

Your girls arn't so apt to run off and get married
 With some one who's known by the hod he has carried.
 It gives you more time for your mental research.
 You have no excuse to remain home from church.
 Your hosses are sleeker, your ewes raise more lambs,
 You dine if you please upon little neck clams;
 Your rooster steps out with a look that is prouder;
 He crows with more zeal, and consider'ble louder.
 The eyes of the flock and the herd will be brighter,
 The curl in the tails of your pigs will be tighter;
 Your youth you'll renew and your spirit will be
 Refreshed, as when breezes spring up from the sea.
 The eyes of your wife with more luster will shine,
 Your boys, perhaps, be as handsome as mine.

THE COST OF PRODUCING A BUSHEL OF CORN IN CENTRAL ILLINOIS.

By C. H. VanVleck, Philo, Ill.

There are many and devious ways employed by students of corn culture to arrive at the cost of raising corn. I have been a practical farmer and grain merchant nearly forty years of my life and believe every farmer should know the cost of raising corn.

I will give you two instances of calculating the cost. One farmer says: "I pay \$75 per acre for 160 acres of land, \$12,000, and \$2,000 for teams, tools, harness, etc.; total \$14,000 which at 6 per cent interest would be \$840. I put 200 days work on my corn with one man and team at \$3 per day, \$600 more; total \$1,440, and raise 3,500 bushels of corn, which at 40 cents per bushel makes only \$1,400, even losing money at that price, as the rest of the farm in oats and grass only paid the taxes and supplied the family stores, and kept up the repairs of the farm."

Another farmer says: "I will test this question, and he takes ten acres of good ground and plows it in four days, harrows and plants in two days, cultivates it three times in four days, husks and markets it in ten days, total twenty days work, at \$3 per day, \$60. He delivers it to a green dealer, (I mean a grain dealer) in October. Seventy pounds to the bushel, and has 600 bushels, costing him only ten cents per bushel. You see at once the fallacy of both farmers' figures.

There is an average cost of raising an acre of corn, and also an average crop for ten or twenty years, and we ought to know nearly the average of each. I therefore submit the following table for the corn belt of Central Illinois, and believe it correct, and the only solution to the problem:

Rental per acre.	Plowing and harrowing.	Planting and harrowing.	Cultivating three times.	Husking and marketing.	Crop per acre —bushels.
\$3 00	\$1 25	\$0 20	\$1 50	\$1 50	25
4 00	1 50	25	1 75	1 75	30
5 00	1 75	30	2 00	2 00	35
6 00	2 00	35	2 25	2 25	40
		40			45
					50
					55
					60
\$18 00	\$6 50	\$1 50	\$7 50	\$7 50	340
4 50	1 62½	30	1 87½	1 87½	42½
25	.....	.....	.....	.....	2½
\$4 25	.....	.....	.....	.....	40

Then we have—

Rental	\$4 25	per acre.
Plowing and harrowing	1 62½	..
Planting	30	..
Cultivating three times	1 87½	..
Marketing	1 87½	..
Average cost	\$9 92½	..
Average crop.....	40	bushels.

You will notice that I deduct 25 cents rental per acre, as there is less \$5 and \$6 rental, than \$3 and \$4; also I deduct 2½ bushels from the average corn crop, as there are more acres under 40 bushels than above.

The government report makes the average for ten years for the United States under 30 bushels but we are much above the average in Central Illinois.

Now what does it cost to raise a bushel of corn? In round numbers it costs 25 cents per bushel, 40 bushels per acre; 60 bushels per acre costs 17 cents; 50 bushels per acre costs 20 cents; 40 bushels per acre costs 25 cents; 30 bushels per acre costs 33 cents; 20 bushels her acre costs 50 cents; 10 bushels per acre costs \$1.

In conclusion I will say that all the farmer gets over 40 bushels per acre, and 25 cents per bushel is again above rental and wages. A farmer that owns his land clear of debt gets the rental, \$4.25, and the wages, \$3 per day for man and team for his own use, less the taxes and fixed charges, such as repairs, insurance, etc., which on 80 acres improved land amount to \$1 per acre, and 75 cents per acre on 160 acres, each year for a ten or twenty year term.

Now what does a tenant get? He gets the wages for himself and team, and as profit all the corn that he raises over 40 bushels per acre, and all above 25 cents per bushel, for the crop, that is, his share of the crop. How should land be rented? Certainly not for cash rent. The tenant should insist on the landlord sharing the losses as well as the profits of each season, and it is the only way a farm can be kept up to a high or good condition. The farmer that raises less than forty bushels per acre or gets less than 25 cents per bushel for his corn is losing money. Therefore it should be the aim of the farmer to produce more and hold the corn for 25 cents or better, per bushel. The agent of the Sibley farm in Ford county tells me that they have 133 tenants, and that the cost of raising an acre of corn, exclusive of the hauling to market, is \$9.21 per acre, which corroborates my figures of nearly \$10 per acre.

REPORT FROM EXHIBITORS AT STATE FAIR, 1898.

"BEST YIELD OF CORN PER ACRE."

The gentlemen, whose reports follow, were asked by the secretary of the Champaign County Farmers's Institute to give a short account of growing the corn in this competition; and they have kindly presented the subject in a practical way, describing the land, plowing, cultivation, planting, seed, etc.

The first premium was awarded to W. F. Schnapp, Loyd, Menard county, on a yield of 180 63-70 bushels, white, taking blue ribbon, one set Fairbank's farm scales, and \$100.

"The ground on which I raised the corn exhibit at the State Fair is comparatively new land, and very rich. Two crops of wheat were raised on it, then it was sowed in clover, which was allowed to stand three years.

"The land referred to was pastured with cattle and sheep.

"Broke early last spring; thoroughly pulverized and harrowed.

"Corn planted in drills 3½ feet apart; grains were about 7 inches apart in the row.

"Corn was planted about the middle of May.

"In cultivating the growing crop I harrowed just before the corn was through the ground thus destroying all grass and weeds and at the same time getting the surface in a more loose and mellow condition. After the corn was up it was plowed—keeping the ground thoroughly stirred and free from weeds with the Sattley Tongueless Cultivator. I had the four big shovels on the Sattley Cultivator. I cultivate rather deep, but in laying by keep farther from the corn than at first. Have no certain number of days between the plowings, as different seasons require different cultivation. I always endeavor to plow often enough to keep the soil in a fine, mellow condition and free from weeds.

Respectfully yours,

(Signed.)

W. F. SCHNAPP,
Loyd, Menard county."

The second premium was awarded to John H. Powers, Prophetstown, Whiteside county, on a yield of 176 40-70 bushels, white, taking the red ribbon and \$100. Mr. Powers was also second in the contest of 1897.

"PROPHETSTOWN, Whiteside Co., Ill.,
November 26, 1898.

"The land is common black loam, manured with sixteen loads to the acre in the fall; in spring plowed eight inches deep, harrowed three times before and three times after planting.

"Drilled in rows three feet, eight inches apart.

"Will say in regard to the 'drilled rows,' that they were three feet eight inches apart; it was drilled three to four kernels in a hill, so to make sure of a full stand, and afterwards thinned out, so the hills were about one foot apart, leaving, of course, the strongest stalks. Plowed with horse cultivator four times, and by hand once; the cultivator used was 'Eagle Claws'; the variety of corn used was Iowa Silver Mine; it is white dent.

Respectfully,

JOHN H. POWERS.

The third premium was awarded to F. D. Nunes, Chatham, Sangamon county, on a yield of 145 22 70 bushels yellow, taking white ribbon and \$50. Notice how ingeniously the seed corn planted was made up.

CHATHAM, ILL., December 13, 1898.

Yours requesting an account of that third prize acre of corn I hasten slowly to answer. Well, hem, so here it goes; watch it or you will not be able to see it. In the first place will describe the land on which it grew. It is black loam, third crop from the sod. Broke the ground with a two-horse plow in the month of May. Thoroughly prepared the soil, and on the 30th of May I planted it with planter, 3-foot 6 one way, 3-foot 8 the other, and then I went over it and straddled the rows and planted it the second time, putting about 2 or 3 grains to the hill. It came up fairly well. We ploughed it once and hoed it twice, and on the 23d of September we husked it and it weighed 145 22-70 bushels.

Perhaps you would like to know something about the seed, so here it goes. When the Sangamon County Institute was held at Auburn I bought four different kinds of yellow Dent corn and I mixed it, and the seed of this was from that mixture. I also tried for the prize last year and got 116 62-70 bushels, and if living next year will try for it, and I want 200 bushels and divil a bit the less. I have 320 acres and every one of them is capable of producing 200 bushels if the season is favorable.

Dear sir if if you can't make this out you may send for me it may be that I will be able to read it for you if I don't have forgotten the substance of what I rit or written.

Give the Institute my best regards and tell them that if the State Fair folks will put up a purse that they need not try for it, for I am bound to get it if I have to get all the corn in Egypt, and then some.

Yours truly,

F. D. NUNES,
Chatham, Sangamon Co., Illinois.

C. W. McMurry, Curran, Sangamon county, reports a yield of 126 bushels yellow. Note what he says about his seed. He had a thin stand compared with the others, being one half that of the first premium lot. Favors deep cultivation:

In reply to your request for a statement of my method of raising corn, exhibited at the Illinois State Fair, entered in the contest for the premium offered for the largest yield of corn raised upon one acre of measured ground, will say that I was surprised that I had raised so much with so little effort.

I gave this piece of corn less attention than any other field that I planted and did not make up my mind to enter the contest until about July 15—the day that the entries closed.

The land was a timothy and blue grass sod. I broke the sod as early in the spring as possible—as soon as the frost was out of the ground and it was in a suitable condition to work; broke the sod about three and one-half or four inches deep—did not subsoil—the land lay until I planted my other fields, which took me until the latter part of May. By this time the sod was thoroughly rotted, but the weeds and grass had started so badly that I thought the easiest and best way to get rid of them would be to rebreak the land which I did plowing about the same depth as before. The ground turned over in splendid shape and all that was required to put it in proper condition for planting was to give it a good harrowing.

Commenced planting the field May 31 and finished June 2. This particular acre being situated about the middle of the field was planted June 1. The rows were planted three and one-half feet apart and the planter was set to drop one grain in a place fourteen inches apart; planted about three inches deep.

The corn is a variety originated by myself and I have neglected to give it a name. It is a bright yellow dent, very deep grain and the ears measure

from twelve to fifteen inches in length, well filled at both ends. It is nothing uncommon to find forty-five to fifty ears that will make a bushel of shelled corn.

I used no fertilizers upon this ground and I am sorry and also ashamed to say that the corn was only cultivated twice. We used the six-shoveled cultivators, three on a side, and we put them in pretty deep both plowings.

I have tried both deep and shallow cultivation and have obtained the best results from deep cultivation.

While I am proud of the showing my corn has made this year, 126 bushels to the acre, I can see many ways by which I think I can increase this amount considerably next year under favorable circumstances.

Hoping to hear from all my competitors at the State fair, I remain,

Yours respectfully,

C. W. McMURRY.

G. W. Doyle, Butler, Montgomery county, reports a yield of six large loads. Corn was blown down by the storms of last summer, as were also those of the other four exhibitors. Mr. Doyle admits making a mistake in planting seed not adapted, which we had all better heed, as one of the mottoes of the Illinois Farmers' Institute is and should be, "Make no old mistakes." New ones will pass once.

BUTLER, ILL., December 12, 1898.

The acre of corn that I planted for the State fair exhibit was planted on deep, black soil; one-half of the land was an old horse lot, the other half was an abandoned orchard with the stumps grubbed out, with no special prepared ration as to fertilizers. Was plowed with an ordinary Satterly 3-horse walking plow. Thoroughly harrowed and then planted with a 3-foot 6 planter drill drop every eight inches, one grain to the hill, with occasionally two; was planted May 18th. The rest of my tending was not what I would have liked; it was too wet for the early culture that corn needed. Cultivated with common 2-horse cultivator, with bull tongue, shovels next the corn the first time; with large shovels the next two times, and hoed it once.

I planted two kinds of corn, John Lewis Child's Golden Superba, and Everitt's Improved Mastodon, which I am sure was a mistake as to Child's corn. I would prefer a native corn, a home-grown corn or any good variety.

There was a storm through this section when my corn was in roasting ear and blew it flat and it never straightened up; so it never filled out right, but was light and chaffy.

The bulk yield was large, being six large loads. I did not go into the exhibit on account of the poor quality of the corn. Two things I learned, first, the need of a higher state of fertilization; second, and thicker crops than we usually grow.

Hoping these few lines may prove satisfactory and of some benefit to your institute, I beg to remain,

Yours truly,

G. W. DOYLE,

Butler, Montgomery Co., Illinois.

WASTE ON THE FARM.

By John Cunningham, Greenup, Ill.

A penny saved is two-pence clear.

A pin a day is a groat a year.

—Dr. Franklin.

Mr. President and ladies and gentlemen:—I have been assigned one of the easiest and yet one of the most disagreeable parts of all the speakers on the program in this institute.

It is easy because the subject on which I speak is self-evident. You need only to open your eyes and the scene of waste enters. Every corn field is in witness on this subject of waste. The neglected stock and all the surroundings show that I need no argument on my side of the question. The only thing I can do is to remind our people of their wastefulness. I shall only state facts; they are apparent.

But you may say, "Why should my task be so disagreeable?"

I answer: Because from the very subject itself my remarks have to be in the nature of things a reproof. Indeed, I expect to be called a common scold.

But to the subject. I was raised on the farm and have watched with keen interest the progress of agriculture and stock raising ever since my boyhood days and I must say with sorrow that the farmer has not kept pace in the advance movement in the last sixty years with other enterprises.

We live in a temperate climate. We are blessed with a free government, and whatever faults may be found with our government they are all our own. The government is just what we make it.

We can produce as great a variety of crops as any people on earth. But we neglect to save. In the first place we waste by not studying what our land is adapted to; but we have some land (only a little of it) that is so poor that it can scarcely deserve the name of soil. As the old saying is, "It looks like it would scarcely sprout peas." Yet we see some men that make good livings on this very land. Why? Because they study what it is adapted to. They plant it in fruit and berries, and to the astonishment of the men who own black, rich loam they make more to the acre than the owner of bottom land. In other words they don't waste their ground because it will not raise sixty bushels of corn to the acre for a succession of years, but they use it for what it was intended for by nature. Hence we must study our soil, as it is the book of nature from which we all get our subsistence. To do this we must read agricultural journals and newspapers (especially the Greenup Press) and learn by experience and close observation what our land is fit for, and not try to defy the laws of nature, but whatever we do we should not waste one foot of ground; every foot is good for something. Appropriate it for that use for which it is best adapted.

I know a man who lives in the borders of Greenup that has a little spot of ground of only four and one-half acres that is about the poorest hillside I ever saw and he makes a good living on it by cultivating small and large fruits and raising poultry; but he wastes nothing.

There are hillsides twenty miles this side of Cincinnati that are worth \$100 per acre for the rare quality of grapes produced on them. So I repeat, don't waste your soil because it won't produce exactly what you want it to produce, but adapt your crop to the soil.

Go where you will among the farms in Cumberland county and you will see plows, harrows, mowers and all kinds of agricultural implements rusting in the field. Why? "Oh! I have not got the money to build sheds for these things." Then why don't you haul timber to the mill and have it sawed on the shares, or fix some way to trade for lumber to keep these expensive articles under cover and thereby make these articles last you twice or thrice as long?

Then look at your hogs, cattle and horses and see the snow and sleet on their backs; watch them all humped up and shivering, and promise the poor dumb beasts that they will have better treatment next year.

Then, how much do you waste of the crop after you raise it? Of the corn you may safely say one-third is commonly wasted—that is the husks and fodder. Horses, cattle, sheep and mules will live comfortably through winter on husks and blades of corn, especially if in shelter, and then you can send more hay to market.

By the way, how much hay is spoiled in the shock and how much in the stack? In stacking you should make your stack nearly in the shape of an egg that has been mashed a little at the large end. The larger the stack the better, for then there is less in proportion that is exposed to rain, and by having a bulge in the middle all that part that is below the bulge is exempt from rain even on the ends and outside. The same rule holds good as to oats, rye and wheat. Then, another way of saving is to stack your sheaves very close together and keep the middle fuller than the outside. This advice is, of course, for those who have no shelter for these products. When your hay is in the shock don't wait a month or two for the thresher to come around, but go and stack it up and keep it dry.

Save everything. Save your straw after threshing, and if you can't do anything else with it make a barn of it by building a sort of skeleton shed and then stacking the straw on it; it will make a nice shed for horses, cattle and mules. If it is oats straw it is not good for hog shelter.

Then, after you have used up your crop and utilized it, don't throw away the manure, but haul it out on your soil and spread it out carefully. Remember the old motto: "Always taking out of the meal tub and never putting in will soon come to the bottom." Always taking off the soil and never putting on will soon exhaust it entirely. Hence the value of stock farming in preference to grain selling. In stock raising you need not waste anything. Don't throw your manure in the ditch to be washed in the Ambraw river. It is not needed by the cat fish, while there is no end to the demand for it on the fields and meadows.

I could enumerate other items of waste, but will conclude this article by advising you not to waste your time, which is the most valuable article you have if rightfully used. Don't always say it is too wet or too dry or too hot or too cold, for if you look over your farm you can nearly always find something useful to engage your time in. You can take a tree and cut it out into a trough to feed and water your stock. You can lay in your summer fuel and have it all cut and dry, so that you don't need to occupy your time with that in the crop season, and your wife will always have nice dry wood and can build fires and get breakfast by the time your horses are done eating in the morning, thereby saving time, and time is money if you only use it rightly. We venture that there are very few farmers who can say truthfully they have nothing to employ their time. Perhaps you need a ditch dug or a spot of brush or grubs taken up or a well for your stock. Look over your farm occasionally and see if there is nothing you can do to make your stock more comfortable.

We repeat that if you will seek employment you are almost sure to find it and you will have no need to waste your time.

DOMESTIC SCIENCE DEPARTMENT.

HOUSEHOLD ECONOMICS.

Mrs. Henry M. Dunlap, Savoy, Ill.

I am glad that it has been made possible, that as men and women, farmers and farmers' wives and daughters, we can meet here today and reason together over this most vital and important subject, "Foods for man, and the simplest, easiest and most wholesome way of preparing them."

The true way to learn and to help is to reason together. One writer says, "In reason each stands open and receptive to such facts as may be presented by the other, still remaining calm and clear in his own thinking faculties. Each is thereby enabled to see whatever points of error may be contained, either in his own theory or in that of the other. Thus both gain through reason while both invariably lose by argument. Argument is always the implement of opinion while reason is the instrument of intelligence. Opinion never has any use for reason. Opinion knows it all without taking the trouble to investigate. This attitude closes the door to knowledge in which the opinionated person never learns how little he really does know." For the purpose of reasoning this matter with you today, I come, not especially to place my ideas of things before you in any argumentative manner, for then my purpose would fail.

I come not as a teacher or scientist, but as a home-maker and student of these problems, and can speak not so much from theory as from practical experience. As a farmer's wife I can appreciate somewhat the position of farmers' wives in general. The amount and kind of work that devolves upon them as their share toward bringing success to the farmer and his farm.

Do the majority of farmers appreciate the work done and the tasks performed by the one they call wife and mother? Do the majority of these wives and mothers place their work and part in the economics of life on the plane where they belong and seek for, and demand if necessary, the ways and means of knowing and performing their labors? Self examination is good for us all at times, and I hope the farmer and farmers' wives will try its effect in these matters.

It was only when this subject was brought so close at home to me that I was obliged to think, to turn the light of reason within, that I commenced to do a little self examination. One of the best friends I have ever known, was the one that turned me in the direction of my own shortcomings, turned the X-rays of science and reason on my ways of doing things, and showed me clearly that I needed to study for a different order of things. I now bless that friend every day as knowledge and power are added to the routine of my daily life, making it partake less of drudgery but more of the pleasure and spirit of the task well done caused by the power gained in knowing how to perform that task in the best and most scientific manner.

The subject of foods for man—kinds, combination and preparation—is a subject requiring much thought knowledge and research. We have studied all the sciences and arts but the science of foods and the art of living and today we are reaping what we have sown in a diseased, intemperate-doctor, abounding nation. In the nature of affairs conditions have grown so bad

that for self preservation man has been obliged to cast his thoughts to the gaining and possessing the knowledge of the science of food and the art of living nearer to nature's laws. In other words, we must study nature—her ways are ways of wisdom and peace.

Many minds are turning today to the science of foods for man, and the thoughts and investigations of these minds are what we must seek for, and then use our own reasoning powers in adapting them to ourselves. So far, we find very few scientists, a few theorist, and a great many opinionated people, pro and con.

In a very large degree we have become a people of artificial feeding. We have been gradually growing away from natural food and gaining artificial tastes and methods of preparing our food. We do not use the wheat grain in its God-given condition, but by our milling process we eliminate much of its food value. We are becoming a sugar and salt-eating nation, not because nature intended it but because we have educated our palates to require these things. We do not eat fruit and vegetables in the order of their seasons in our latitude but by our present process of preserving and rapid and perfect rate of transit existing, we know no seasons. As a nation we have cultivated a taste for all kinds of condiments, preserves and pickles. These things are all food for thought to those that wish to know how to get well and keep well or if well to stay well.

Let us look for a moment to what we are and why we need food at all. We are a part of nature, as the plant, the bird, the animal, and to sustain our natural or nature bodies we must eat to supply the wear and waste and natural decay of such bodies. We find man possesses the same elements that the plants and other animals do, and that these elements are found in the soil and air. They are made ready for assimilation by man, by the plant and animal. It is said man is composed of fourteen of these principal elements, as oxygen, carbon, hydrogen, nitrogen, calcium, phosphorous, sulphur, sodium chlorine, flourine, iron, potassium, magnesium silicon. These elements are all found in the grains, vegetables, fruits, nuts and meats. One writer says we might speak of beef as "manufactured grass."

Now if these elements are not given to our body in such proportion as to sustain the loss by waste and wear, that part not receiving the proper quota of food must of necessity become weakened and diseased. You know full well that plant and animal life must be fed with a knowledge and care of the foods they need or they fade and die, or at best are only poor specimens of their kind. Equally and greater should be the care and knowledge used to feed man, for he contains an indwelling soul that is greatly affected by the casket that surrounds it. A minister of note in a sermon recently said: "It will not be denied by anyone that health is the outcome of normal thoughts, feelings, functions, toils and activities. When the powers of the mind and the organs of the body work together in harmony, good health is the result.

"Happiness is the legitimate offspring of good health. Real happiness is impossible without physical and mental health.

"In this way we discover that function, character, health and happiness are bound together by the laws of life, and that God's will is that His children upon earth should be happy in the discharge of their duties."

Now why are we not happy? Why is there sickness, intemperance and such sad, wrecked lives all around and about us? To me it is because we have not or do not study the physical and spiritual laws that govern us. We have not realized that sickness of soul and body and intemperance come from laws violated, and not from some special dispensation of Providence. We must look deep and study earnestly God's laws, that we may obey them, and not suffer from the violation of them.

Foods are divided into carbonaceous, or heat, force and fat-producing foods; nitrogenous, or flesh-forming, muscle-making foods; phosphate, brain, nerve and muscle foods; and inorganic foods, salt and water.

The carbonaceous foods are the starches, sugars, fats, such as white bread, potatoes, rice, sago, macaroni, salt pork, sweets, all kinds of fats, oils, cream, butter and nuts.

The nitrogenous foods are beef, mutton, poultry, eggs, milk, cheese, old and ripe peas, beans, and lentils.

The phosphatic foods are much the same as the nitrogenous; lean meats, fish, cheese, whole wheat, oatmeal, almond nuts, southern corn, beans, peas, figs and prunes.

I know you are wondering why I am giving you all this, but I think I must, for these classifications of foods should be known by every housekeeper and home-maker, for we are obeying the laws of health when we can place food upon our tables in proper proportion, not giving too much of the carbonaceous or too much of the nitrogenous at any one meal. Excess of either, but especially of nitrogenous foods, produces diseases of various kinds. For instance, if at one meal you give potatoes, white bread and fat pork for your principal dishes you would be giving too much of the carbonaceous. If you gave meat, eggs, milk and cheese all at one meal you would give too much of the nitrogenous foods.

After you study foods and their combination for a time you will begin to realize what an important factor they possess in the wool and warp of life, in the rise and fall of nations, in their disease or health, their morals or immorals, and wonder why all can not see it, and why it has not been realized long ago.

You have experiment stations all over the land to experiment on a perfect food ration for all of your stock, even down to the much-neglected hen, but where are we experimenting on foods for man and his growing children about him?

There are a number of universities that are studying and determining the chemical elements in our different foods, and that is good as far as it goes, but if these elements can be destroyed in a measure by our method of cooking and combining, must we not go farther and bring all this knowledge as one perfect whole into the educational plan for our boys and girls.

The science of cooking and combining our food is one, the knowledge of which does not come intuitively, neither can we depend on the knowledge of our grandmothers. There should be an advancement and acquiring of knowledge in that direction as in all other sciences and arts. A physician said to me not long ago, it almost frightened him when he thought of the things he practiced and advocated ten years ago, and he wondered if ten years from now he would feel the same about what he was doing now. He thought he would.

I feel it will be the same experience with cooks that make of their food a study, that there is much knowledge to be obtained and a great amount of experimenting, as it is with the physician of today, before we know and have just the correct food in proportion and combination. But we must not despair, but work with the light we possess today, seeking ever for more and better as it is obtainable.

There should be as much science required of the one who cooks and serves our food for us as we now require of the one who enters our homes and prescribes drugs to cure us of the ills caused by ignorant and unscientific cooking.

Is not a perfect food ration for man of as much or greater importance than for your animals? Should we not seek to attain it?

It has been found that in the whole wheat grain we have the fourteen elements in almost correct proportion for man, but man by his unscientific ways of thinking and doing, mills out the nitrates, phosphates and mineral portion, leaving but an imperfect food composed almost entirely of carbonates. Bread made of whole wheat flour must of necessity be better food than that made from white flour. Bread made from either kind should have knowledge and science brought to bear upon its preparation. Many of our house wives do not know what yeast is and have never had an opportunity to look through a microscope and view those wonderful little yeast plants. How can they know when it has not been deemed necessary for science to play any part in the cooking and preparing of food? If they knew that in the study of biology and the invisible life about them that added power would be given them to

cope with many of the household difficulties; could they see the yeast plant under a microscope, study its habits and nature and bring the knowledge of it into the making of their breads, they would not do the many injurious things they now do in their ignorance. They certainly would not make large loaves of bread and bake two or three together in one pan if they knew that that bread made from yeast required to be thoroughly baked to destroy these yeast plants, or if not they enter the stomach, still to continue their existence as long as they can find any sugar to feed upon, and hence cause so much trouble to the human stomach, producing fermentation and dyspepsia.

In the cooking of our eggs and meat great care should be used or we destroy much of their value to us as food. The albumen, or white of an egg, should never be heated beyond the temperature of 160 to 180 degrees, for when we do we toughen the albumen and make it tough and almost insoluble by the gastric juices. Eggs should never be fried or put on the stove and boiled rapidly, for then we cook in a temperature much higher than we should. The albumen portion of meats require slow cooking, or we toughen it and render it difficult of digestion. Pot meats, meat panned or baked, should at first be immersed in boiling water or put in a hot oven to sear over the outer side in order to retain the juices, and then should be allowed to cook slowly until done. There is much knowledge necessary to cook all kinds of meat and poultry to make them palatable and digestible.

It also requires some knowledge to know how to buy them in the most economical and judicious way. Most of us poor housewives are at the mercy of the butcher and he knows it. Should our education be so incomplete?

The cooking of all kinds of vegetables requires care and science. Cabbage, turnips, onions and celery can be cooked so they are easily digested and very palatable. Vegetables that you grow above ground should be put on in boiling, salted water; those that grow below ground in boiling, unsalted water. Vegetables, like meats, are destroyed by rapid cooking. Put cabbage, onions and turnips on in boiling water and just let them come to a boil, and then set them where they will simmer and not boil, and results are much better. All these vegetables are composed of cells surrounded by woody fiber, and when you boil them at a rapid rate you rupture these cells, sending forth into the water and the air some of the properties you should reserve for food. Especially is this true of the cabbage. Cabbage can be cooked so there will be no odor to it. If you will remember these things and let it simmer on the back part of the stove without a lid it will be easily digested, for the property contained in the cell that is required in its digestion is not lost and the woody fiber is not toughened by rapid cooking and extreme heat.

Use vegetables in their season as much as possible and don't use so many canned goods. They are expensive and not so wholesome. The number of winter vegetables are numerous enough for variety, such as cabbage, onions, turnips, beets, carrots, squash, celery, parsnips.

We have so many cereals of various preparations that do not require any cooking, or but little, that it is not necessary to use oatmeal unless it has been thoroughly cooked. Even the rolled oats require several hours cooking before the starch cells are ready to be digested. Oatmeal when properly cooked is considered by some a very valuable food, but be sure of its cooking, especially before giving it to children.

Corn meal should be used often in our bills of fare, once a day would not be too often. In buying remember you should get the granulated meal for mush and the finer for bread. Some are using the corn flour for bread, gems, etc.

There is something to learn of every article of food we use, that we may make it the most nutritious and palatable in its preparation.

The cook needs some knowledge of chemistry as much as the physician, pharmacist, and those engaged in other arts, for he or she is handling nature's elements and making compounds of either beneficial or deleterious effects day in and day out. The kitchen might well be called the household laboratory, and if more science and knowledge were brought to bear upon the work performed here we would not need so many physicians and trained nurses.

When our food is bought or raised ready to cook and prepare then the question should arise in the mind of every housewife: "Have I done my part in making my labor of preparing it as convenient and simple as possible? Do I have the best implements and appliances for performing it. Do I spend my time in complaining about the lack of conveniences and appliances without making greater effort or even demanding that they be made different?" Many times both parties to the contract of wedded life are at fault and need to turn about face and take another view of their life and its conditions.

It is from experience I speak for I spent a number of years complaining over my inconvenient kitchen and I found that I was the one most to blame.

Many men, and I am sorry not all of them, are willing to divide some of the profits in making home-life convenient, as well as the farm life outside. Every girl should study that very point in the character of a man before she promises to be his helpmate, for her future happiness depends much upon whether he wants the larger half of the profits of the business or not.

I commenced my reformation in my kitchen by discarding the iron kettles and all heavy articles of daily use, where lighter and more convenient ones could be adopted. Use granite or aluminum cooking vessels that are easily cleaned and so much lighter, and more attractive to clean. There are several very nice metal kneading boards that are light to handle and much more easy to keep in a sanitary condition. A meat grinder should be in every home for you will find ways innumerable to use it. There are some that have different sets of knives so you can use it for grinding up your dry bread, making nut and fruit food, etc.

A whip cream churn should be among the utensils of every farmers' wife for deserts, simple, and many may be made if you can quickly have a little whipped cream.

I have with me a few utensils that I have brought to show what you can get with \$1. This set was only ninety cents as the spatula was a cheaper one than what I usually get.

A tin measuring cup; this one is divided into thirds, but you can get them divided into fourths, and if I could only have one I would get it divided in fourths. By measuring accurately the ingredients of all your compounds your cooking will always be uniform and you will not be saying, "Oh I did not have good luck today," for you will always be lucky. With these little cups you can do away with the use of your household scales to such a great extent, for one fourth of this cup holds two ounces of butter, lard, etc., one cup is half a pound of sugar and so on.

The tellers kitchen knife—a little ten cent implement that if you possess you will constantly have in use, its size and shape makes in nice for turning any food on the board or in the pan, such as croquettes, cookies, mush, etc.

The wooden spoon or paddle, is one that is easily grasped by the hand in beating or stirring and is much more wholesome to use in all kinds of food than the tin or sheet iron ones.

This five cent egg beater I know you all know, but I find it much better than the Dover or any other I have used.

This is a boning knife especially convenient in cutting up chickens and meats.

The spatula I think I appreciate as one of the best of little implements. I use it for mixing dough, cleaning out any dish containing dough, or board of any kind, for scraping or cleaning kettles and in various ways when you want a knife or article that will give and adapt itself to the shape of the vessel.

I have with me just a sample of the ware that is nice to use in your kitchen for mixing bowls, to beat eggs in, etc., in fact, you can put them to the same use that for which the crocks and china mixing bowls were used. Avoid buying or having any utensel that will break. These can be obtained in all sizes and will last you a life time, no matter how many times they fall to the floor

or are knocked off of table or shelf. I have one I bought while at the world's fair and it is as good as when I bought it. The first price may be a little more than crocks or pans but it will out-wear many of them.

Have can opener, apple corer and parer, cork screw, cleaver and all those little things at hand, that much valuable time may be saved.

Have your tables covered either with zinc or oil cloth. The cooking table I would advise zinc by all means. Have the floor either painted or covered with linoleum or oiled, so that the scrub broom or brush are not to be used.

For your washing and ironing have the best of implements, such as ironing boards, irons, holders, etc. A washing machine is to me one of the least necessary as there are easy ways of washing without it.

After you have spent some time in planning and furnishing your kitchen so that it is one of the attractive rooms in the house, you will begin to feel such an added interest in all the work performed therein, that much of the old thought of its drudgery and unattractiveness will be removed. You will also find that your interests has extended to other members of the family and that your better half will lend some of his time and money towards its greater improvements.

As I view life today there is but one place in which the truest and best happiness can be found and that is in the home. The boy or girl, man or woman, who can truly say they have a happy home, have certainly a foretaste of that heaven they are seeking in the sphere beyond. They are fortified against the temptations, criticisms and trials of the world as they meet them.

Is there a better work than for us, as men and women, than to build a happy home for ourselves and loved ones, and aid others so far as it lies in our power to do likewise? I think not.

Then, all time, money and effort spent in that direction will return to you in a ten fold measure and the blessings of your fellowman and those you hold most dear will follow you into that land where homes are found—not made by hands but are builded by the good deeds done while sojourning here below.

CITIZENSHIP OF WOMAN.

Mrs. Katherine Stahl, Moro, Ill.

A sister patron of husbandry, I salute you my assembled friends; a member of the society, Daughters of the American Revolution; with my head, my heart and my hand I salute the Stars and Stripes—the glorious banner of the grandest country that the world ever knew.

An American woman is nothing if not patriotic. True, she should not, like the immortal Washington, be first in war; but she may with perfect propriety be first in peace, and she has a divine right to expect the first place in the hearts of her countrymen. Her importance may be overlooked for a season, when the quadrennial eruptions of the political Vesuvius are belching forth their campaign smoke and saliva, but when the ballot box has quieted the disturbances and the noise dwindles into the mere mutterings of the defeated, then the abiding theme of the age rises like cream on milk, making men wonder if the poetess spake truly when she said:

“For every baffling problem put,
A safe solution waits.”

For about six thousand years the solution to the baffling problem—woman—has been waiting and growing more complicated with time.

Had our worthy forefather, Adam, studied into the matter more assiduously when there was but one unknown quantity, he might have handed down through the generations a comforting word at least for the puzzled man of the closing days of the nineteenth century who find themselves comforted with married woman, the woman who wants to gets married, the old woman, the new woman, the advanced woman, the woman of the period, the emanci-

pated woman, the bicycle girl and the girl who does not really know whether she wants a wheel or a husband. The problem does not readily conform to the classification in either of the positive sciences.

Biology is too broad; sociology not broad enough; astrology is too distant and too immense; mathematics too precise; physics not precise enough, and chemistry, too explosive!

What and who is sufficient for these things then, may well be exclaimed by the wisest of men? The master minds who with such far-seeing, yea, almost inspired vision, framed the declaration of independence and the grand national constitution which governs our land today, wisely refrained from touching a point at once so weighty and so fine. Had they seen fit to make laws solely applicable to the inevitable "woman in the case" the American men might have had some statutory place upon which to hinge authority.

As it stands now, woman is pretty much a law unto herself: wearing what she pleases, doing as she pleases, saying what she pleases, going where she pleases. She can preach, teach, hold conventions, lecture, edit newspapers, and dabble in politics with the utmost composure whatever the paramount issue of the campaign may be, feeling as she did in the political struggle of 1896, that if free silver won the world and all the gold bugs in it could not hold her responsible; and if a gold standard was maintained, silver hat-pins, belt buckles, shoe bones and garter fastenings might come cheaper, and other sterling ornaments would perhaps be easier to get with the monetary power of silver so reduced.

No, whatever may be asserted the women can not be blamed for the embarrassed situation in America at present. But it is altogether probable that the national struggle about finances will never end till wise women begin to jump at practical conclusions which men seemingly can never reach with their superior reasoning and voting.

The writer of Amiel's *Journal*, says: "The destiny of nations is folded in woman's mantle." This plainly indicates that the standard of civilization is measured by the womanhood of the country; not by its manhood, its naval or its military strength. This then being a true statement of the woman case, if anybody thinks the female mind too light and fanciful to be of any particular value in the political and financial, as well as the social atmospheres of the world, let me, woman-like be contrary and give some instances to prove that woman has ever been a prime factor, occasionally the soul-saving factor in the affairs of men and nations.

We may take a retrospective turn toward Eden as a beginning and find the very "first lady of the land" with a venturesome spirit, took the initiative and led her liege lord into the mischief which "drove outward from Eden the penitent pair," but which was in reality the diplomatic stroke establishing the industry of agriculture, through which the world has ever been and ever will be clothed and fed. Thus from first records is shown how woman unwittingly, but most surely achieves greatness, while man is doomed to labor and to wait for his successes.

Some years after Mother Eve's *coup d'etat*, the Philistine men, feeling that the mystery of Samson's strength was enough to warrant them in the exercise of the slightly feminine characteristic curiosity, found themselves baffled till they shrewdly employed a woman—Delilah—to help them. Like Barkis, she was "willin'." It was a most traitorous act in the lady, but it has always been and always will be nothing more than human for persons of either sex to try to display a skill equal to the trust imposed.

A more commendable example of woman's power in olden times was when the lives of a whole nation depended upon the immediate action of a single individual—that individual a woman. Who can say Queen Esther was not a transcendent factor in the affairs of men when she so bravely took her young life into her own hands to appear unbidden before the king, for the salvation of the Jews—her people whom she loved? Later still, Rome attributed much of her triumph in war to her loyal, patriotic matrons; the wives and mothers

who cheered their husbands and sons to victory or to death. Our wars in America have given us numberless examples of the patriotic and stragetic abilities and inclinations of women.

La Pucelle in France is that nation's pride, honored the world over as the one who saved her country and her people. The time will never come when a true Frenchman will not rever the name, Joan of Arc, though kingdoms, empires and republic should all pass away.

England has her Victoria, significant cognomen of all that is grand and good and victorious as wife, mother, regent.

Our own dear land was discovered through the generous action of Isabella of Spain (the country we have just whipped), since which time the spirit of wisdom and generosity has prevailed in the minds of the women of America till they are now the envy as well as the admiration of the whole world. What is there in this age that an American woman may not do if she chooses? Clara Barton, of Red Cross fame, even faces the unspeakable Turk and the merciless Spaniard and fears not death. The pen of a woman did more decisive work for the cause of freedom in this country within one single decade than the combined eloquence of Henry Clay, Daniel Webster and all the men who compose the bright galaxy in the U. S. Congress from its inception to the beginning of the civil war. (I refer in this instance to Harriet Beecher Stowe's pen.) All these references are given as before stated to show that a woman is not an inferior creation either in agriculture, discovery, peace, war or politics. In love and money matters, the titled but usually penniless men of Europe are not slow to appreciate the worth of American women as the millionaire exports of gold through the Matrimonial market so easily prove.

All precedent is to the effect that woman has exercised her power by free will alone—that she was moved by no law save the law of love. In the face of all her generous, beneficent actions what encouragement has she ever received? Legislators have never seen fit to voluntarily pass laws, or to contemplate the passage of laws recognizing that a true christian woman is a power not to be overlooked, or that a woman has a right to represent her own interests even, not to speak of the interests of the country, always so dear to the heart of a woman.

Until some fifty or sixty years ago women were not granted the privilege of studying books. For hundreds of years the New Testament plan for the enlightenment of women was considered adequate for all practical purposes, that is, they could learn of their husbands at home, because husbands seemed to know more then and stayed at home better than they do now. But when the census in the old bay state eventually revealed a shortage in the material from which husbands are evolved, the "yankee notion" obtained that "book larnin" would be a fair substitute for the conjugal instruction so impossible to get for every female in the commonwealth of Massachusetts. Holyoke was founded and it came to pass that women began to be scholars. The Massachusetts situation proved a contagion which has happily spread through every state in the union. The mental night of women gave way to a dawn that slowly grows brighter with the ages.

Among the other important discoveries of this wonderful nineteenth century it has been found that these females of the genus homo have brains to do more than merely labor in the regenerative and gastronomical requirements of the race; brains of a quality and quantity sufficient to entitle them to run intellectual races with the noble lords of creation and win victories through actual merits of their own. These cranial discoveries led to the granting of collegiate privileges, but not to the enacting of laws. In some states the statute for compulsory attendance in public schools comes near to the line, but when we look into that closely we find that it was conceived in the interest and welfare of boys who inclined to vagrancy, or to compel parental task masters to let boys go to school.

All the odds yet remain in the masculine favor. A little conscientious reflection might possibly alter this state of affairs somewhat, and still remain most beneficial to the male sex.

When the world remembers her grandest heroes, her most talented men, it will also remember that they were in the majority of instances mother-taught men; sons of country widows mostly. There will be made manifest the urgent need of laws as well as privileges for the cultivation of the female intellect.

Experience proves that intelligent mothers will raise intelligent children, while ignorant mothers will furnish the ignorant ones. No one will dispute that maternal influence and training predominates over the paternal. This truth alone would call for the careful training of woman that she may transmit proper power to her children. The women whose lives are spent as help-meets to the tillers of the soil are especially in need of intellectual culture, since in their isolated surroundings, they must draw upon their own mental resources for both labor and recreation. These labors are indeed manifold and touch upon many sciences of the most subtle order. Chemistry, so intricate to understand, is involved in the everyday life of all women who minister to the needs of a country household. Laundry work is chemical, and when the applications are made with superior intelligence, the results are swifter, surer and more satisfactory in every way. It is not possible for brain to rank entirely above brawn when the omnipresent dirt is up for consideration, but a generous use of the brain will greatly lessen the need of brawn. Too much in the past age as well as the present has been undertaken with no capital but main strength and awkwardness, supplemented by ignorance, hence failures are inevitable.

In the kitchen chemistry plays a principal part, since all food is prepared by chemical action of heat, either moist or dry. We are told that the greatest and best cooks in all the world are men. This is very encouraging, but let me whisper in your ears that the great and good men cooks are scarce in rural districts anyway.

However competent and successful men may be as cooks, the fact still remains that the preparation of food is an occupation well adapted to women, and one which claims the attention of all people that on earth do dwell.

Owen Meredith states the case exactly and poetically when he says:

"We may live without poetry, music and art,
We may live without conscience and live without heart;
We may live without friends, may live without books,
But civilized man can not live without cooks."

Many of these cooks must be women, too.

We are well aware that the law of substitution is the Areadnean clew by which mathematical victims may thread themselves through puzzling labyrinths, and congressmen in session occasionally substitute and "pair off" to reach points otherwise inaccessible, but there are instances where substitution and pairing off avail nothing.

In the three principal departments of labor so naturally allotted to woman—the laundry, the kitchen and the nursery—by reason of his knowledge, strength and inclination, a man can scrub and wash clothing, and a man can cook with as much glory and success as he can project railroads, steamships, wonderful bridges, tunnels, towers, palaces and prisons or invent great searchlights and luminants of all grades from the lucifer match to the dazzling electric glare, but he stands shorn of all knowledge, of all talent, all genius, all power in the presence of the "happy, happy elf," the tiny image of himself.

Oil or soapsuds can be used in a squall at sea to smooth the troubled waters, but the magic power of woman stands unchallenged to quiet the ruffled spirits of the dear little ones of whom it is sweetly said: "Such are the kingdom of heaven."

When all the pursuits of life are laid before us in a graduated scale of importance the care of infants and their training through youth to maturity stands above all and before all others. We women then, who have received the greatest commission on the earth from the Supreme Power in heaven to do the work that shall be of most benefit to the earth and heaven, claim that the sons we raise, the husbands, brothers and fathers whom we, in gladness

of heart, serve with such love and tenderness, should give us every consideration and protection which the masculine mind can conceive by law or privilege.

Some women are now asking for elective franchise. This likely would never have been dreamed of even, but for the soul-destroying institutions and occupations which have sprung up in our midst.

When all our glorious privileges are summed up we are still human and not satisfied. We blush for the future manhood of Germany when we think of her legal attitude toward women as citizens. We can not claim to be a down-trodden race in this fair country, under the bracing shadow of our stars and stripes, but we do claim to be greatly hampered and altogether too much neglected. Men have too long been paying tithes of mint, anise and cummin to the detriment of weightier matters—a reaction must come.

Would anyone like to know if we women can recommend any measures that will help us to be more womanly and better satisfied, any measures that will help to lift the financial and social burdens from Columbia's fair form and make our race still better than it is? Let me answer; let me tell you yes. In privilege there is liberty but no protection. In law we have protection with not so much liberty. We would have special laws passed and also enforced, to secure our domestic tranquility by promoting purity in our midst. Purity of thought and purity of action. We want all license for traffic in virtue, male and female, to be permanently withdrawn and all offenders strictly punished and reformed if possible. We want all gambling dens closed by statute and kept closed forever, thus removing the stigma from many innocent games which otherwise might be safely and greatly enjoyed in our homes. We want every dram shop closed by statute and kept closed forever. We want the nerve-destroying tobacco nuisance abated to the extent at least, that no one may be allowed its use before reaching the age of full citizenship.

This for our social and moral welfare. Our financial situations might be improved by a little statute forbidding married men from impoverishing their homes by giving their names as security for the payment of monies unless their wives are willing to sign the same without persuasion or intimidation.

It will be readily seen now that we women are in full fellowship with men in that "we want but little here below," but we want that little long and earnestly.

We are not asking more than the power of man can bestow, for God made man but little lower than the angels and bestowed upon him the power to choose between the good and the evil. We women feel that we are weak while men are strong. We know that we delight in many things which men call folly, but which they greatly admire in us nevertheless; but we feel that with all our faults and shortcomings we are, at least we ought to be, more to men than their flocks and herds, their houses and lands, their silver and gold, their finest raiment or even their sublimest political opinions.

"Hear my words, O, ye wise men"—your success in life does not depend on such ephemeral things as free silver, gold standard, high tariff, free trade or any political issue whatsoever, but upon your personal industry, your glorious manhood, your rational humanity, your moral uprightness.

You may look to each other for envy, strife and official preferment, but to us, your sisters, sweethearts, wives, daughters and mothers, you must look for the lasting joys of life, home, comfort, love, happiness and prosperity, while to you we look with honor for support, for peace and protection at home or abroad.

SCIENCE IN THE KITCHEN.

Laura Thornton. Magnolia. Ill.

It can be truly said, "Show me the kitchen and I'll tell you of its people."

I know of no other part of the house that speaks more truly the life and character of the occupant than the kitchen. While the house in general is, to an extent, the outlined character of its keeper, yet the kitchen may be called the private department of the housewife. It is here, then, that all restraint is thrown off, and the true or original self appears. Thus it behooves us to make our lives pure and clean, and our kitchen will be likewise.

Too many, I fear, make the mistake of depriving their kitchens, in order to adorn their parlors and sitting rooms, thinking anything will do for the kitchen. Is this right? Is it right to deprive the very beings that that kitchen should make happy, for the sake of pomp and show? Not until we make our working places more cheerful and bright, will the work become a pleasure.

As one extreme is as bad as the other, we should avoid having our kitchens too nice for practical use. How many a home would have been pleasanter—but for the scolding wife when her tired, and somewhat careless loved one entered?

The kitchen, we may say is the true fountain head of the house from whence pours forth the very essence and being of its tributaries. The quality of material that comes from the kitchen, makes that quality of men and women: and the quality of the men and women makes the quality of the nation.

Therefore, if we want the proper kinds, combinations and conditions of our food, we must have some one at the helm who understands, intelligently, what she is doing.

Cooking is as truly a science as anything you can study, but a branch which has suffered too little attention; and we hail the day when all cooking shall be brought to a scientific basis.

My neighbor tells me never to salt my potatoes when cooking them. I ask her, why? "Well, I don't know, only some one told me so." Another friend tells me to always use soda with sour milk, and baking powder with sweet milk; but the "why" goes unanswered. Is this the kind of workmen we want?—who do a thing and don't know why they do it.

But, you say, we learn many things from experiment and experience. No doubt this is true; but how dearly we sometimes pay for that experience? How much better and safer it would be to understand a little chemistry, and the principles of cooking?

A great form that enters into our kitchen life is the word "luck." You'll say, "I had such bad luck with my bread today," or, "I had the best of luck with my cake." When you take your prescription to the druggist to be filled, does he hand you the result, saying, "I had the worst of luck mixing this," or, "I had splendid luck mixing it"? No, indeed, he uses just what is called for, no more, no less; mixes them as chemistry teaches him, and the result is always the same.

So it is with our cooking. The exact measurements, proper conditions and properly mixed will always produce the same results.

Our bad luck comes too often from guessing at measures, using our ovens when not at the right temperature, or not following closely what the mixture calls for. When we see our best scientific cooks observe strictly all these little things, we know it counts for something.

Great care and intelligence should be exercised in the selection and combinations of our food. We know that certain foods give nourishment to certain organs of the body. Then, is it not true science to select the nourishing materials in such proportion as to make a perfect body? What sort of person would you have—all brains and no physical body, or vice versa? For, some foods are great brain nourishers, while others are simply flesh producing.

Would you employ a physician who knew not whether he was strengthening the blood, or the bones? I think not. Then why should we be satisfied with

cooks having no idea of what they are strengthening? A little knowledge of the composition of what we are preparing, would thus enable us to know what we are building.

The brain workers must have vastly different food matter, from that required by the manual laborer. Again the scientific knowledge of the cook is called into active service.

Scarcely do we, as cooks, realize what an unlimited responsibility rests upon us.

I was about to speak of selecting foods for the weak and sick; but will pass it by, for with the advent of our scientific cook, we shall see no more articles entitled, "Diets for Dyspeptics," etc.

Someone says it takes great care and attention to preserve the body properly. Certainly it does. But it takes more knowledge and care to build a good, healthy body to be cared for. Once the windmill is properly constructed and erected, its a small matter with due attention and oiling of wheels to keep it in motion.

It is not surprising, when we think of it, that real art in cooking has been neglected so long. For years, and we might say centuries, cooking has occupied a place among the most unpleasant necessary duties of the household.

With no knowledge as to whether we were doing good or injury; with few, and sometimes none of the appliances which make our work a pleasure; with no conception of a better way, could we hope to see it any other than a dreaded and too often shunned routine work?

Praised by the advancement of woman today! for with the elevation of her sphere comes the elevation of her work.

It is a greater accomplishment to step into the kitchen and cook scientifically than to sit in the parlor and entertain so charmingly the most fashionable society lady that ever crossed the threshold of a hospitable home. And when this is thoroughly recognized, the lily-white finders that have become so skillful with the embroidery needle will become just as artful in the mixing of bread.

Now, with our knowledge of cooking, we must link some knowledge of economy and cleanliness. Scarcely do we realize into what vast amounts the little waste here and there would multiply. We want a science which shall teach us the use of every article at hand. The refuse which goes from our work tables often contain the best of nourishment which should be utilized in some way.

It requires no small store of knowledge and carelessness to be thoroughly clean. In some unseen nook or corner of an apparently clean kitchen may be forming the deadliest vermin. From the very cloths with which we wash our dishes, may be coming those silent workers which reap down whole families at a single stroke. From the simple process of kneading bread may come serious results.

So let us strive for the best we can attain, and the topmost point is within reach of those who will climb. For, "Fate, however relentless she may seem to be, seldom fails to reward the earnest heart and willing hands."

Let us be perfectly acquainted with the quality and strength of the food which comes from our kitchen.

And then, the rosy cheek, the sparkling eye, and the dimpled chin will be no more an artful mask.

HOW TO LIGHTEN THE TOILS OF A FARMER'S WIFE AND YET MAKE HOME MORE ATTRACTIVE.

By Mrs. F. A. McCarty, Filson, Ill.

My topic though trite and seemingly threadbare, is one so filled with vital interests that it can never be exhausted. You have doubtless heard the anecdote, how that three men, representatives of the three great countries, England, France and America, having met to dine, it was proposed that each give a toast in honor of his country. Said the Englishman, "I drink to England—the sun that shines for the whole world." The Frenchman, somewhat daunted, added after a moment's thought, and "I drink to France, who is the moon that controls the tides of the world," and thought now what is left for the American to say. The latter raising high his glass added, and "I drink to George Washington, the Joshua of America, who commanded the sun and the moon to stand still and they obeyed." So I, though somewhat overawed by the most excellent addresses that have preceded me, have yet taken courage to add my mite.

My topic suggests two questions: First. Is the toil awaiting a farmer's wife more arduous than that of her town-bred sisters, occupying corresponding positions in life? and, Second. Is this burdensome condition a necessary outcome of life on a farm?

The duties of home-making are primarily the same in town or country; but the housekeeping on a farm imposes much extra labor on the women of the family. The milk must be cared for; the churning must be done; the poultry is thrown upon her tender mercy; the gardening awaits her pleasure, and last, but by no means least, she must cook and wash for as many men as the farm work requires. To offset this, the farmer's wife has fewer social duties, fewer interruptions, consequently more time and strength for her work. Admitting the necessity of attending to all these various lines of work, and adding to them the office of mother and nurse, we are led to ask, can nothing be done to lighten the burden?

A woman so wearied that every bone aches, and every nerve tingles, is in no condition to enjoy the society of husband and children, much less to be the central force of an attractive home. That she has herself largely to blame for this condition of affairs does not lighten her cares. Nor will she admit that she is foolishly reticent concerning her need of help, and far too ambitious for her own good and the best interests of those committed to her care. The average woman absolutely refuses to discriminate between essentials and non-essentials, and persistently adds yet greater burdens, just to prove what a superior housekeeper she is. As a bride she comes to her new home and with health of body and strong nerves bravely takes up the cares devolving upon a farmer's wife.

As the years pass children come, adding new duties. John adds acre to acre and more hands must be hired and boarded. Her bodily health fails and over-wrought nerves gives way; still uncomplainingly she takes up each burden and, disregarding nature's protest, often works far into the night to complete her task. O fatal, and mistaken idea of duty! How many children hast thou robbed of their birth-right to be well born? How many wards hast filled with demented women? How many homes hast thou robbed of all that is dearest and best? Does John pursue this course? Does he set up an electric light and plough nights? Not a bit of it. He is wiser in his day and generation. He and his team must have rest, so when work increases he buys another team, hires another hand and sleeps the sleep of the just. It is often through thoughtlessness that the wife is allowed to plod wearily on in her round of never ending duties. Did she but claim her rights help would be forthcoming. Even poor help would relieve her of the most wearing drudgery, if like John, she could make the best of what was available, and not let the worry of inefficient help prove more wearying than bodily labor. Could every wife and mother but realize the importance of the interests committed to her care and the far-reaching results of her life work, housekeeping would be sacrificed to home-making. We will all accept as axiomatic the statement that a home is more than a house. Home-making, a much higher vocation

than housekeeping. The house can be made as attractive as the purse will allow without a serious thought from the owner. The architect will plan, the contractor construct for a consideration, "taste" will be supplied by a professional, and the cabinetmaker and upholsterer will do the rest. All the family need do is to walk in and take possession. A home, however, is not so easily provided. While agreeable surroundings add much to its attractiveness, there must be something beyond this—a something money can not buy before a house becomes a home.

In many families there is an unexpressed, but active belief that home-making is exclusively the mother prerogative, and that she needs no help. This is a serious mistake. While she is necessarily the center, every member of the family must do his share before the home can become an ideal one. There must be family partnership of a very active kind, in the business of home-making. The loving bonds that unite the family in this partnership must be wisely, and intelligently formed. There must be absolute truthfulness, absolute confidence between the members of the family. All comfort has fled, where once suspicion enters; we willingly admit, yea even insist, on woman's equality with man. I insist on her ability to achieve a career, to think as deeply, act as wisely and plan as successfully as man, but we can not admit that even the much extolled "new woman" can unaided and alone evolve an attractive home. Here is where the first mistake often occurs, a mistake that leads to inevitable failure. The husband virtually says to the wife: "Here is your kingdom, I have provided, now you administer." but a kingdom without a king, is at best a sorry affair. Each must bear his part in the kingdom of home. We hear much of the responsibility of the mother to her home, and her children. Upon her already overburdened shoulders, society heaps this responsibility. Are they any less the children of the father? Is it not his home also? And who has absolved him from all responsibility except as a money-maker? While their duties lie along different lines, neither can justly shirk the responsibility. We have intimated that a home is more than a stopping place, or even a restaurant. We will add that it is a place where healthy bodies are to be grown, minds cultivated, strong characters developed. Surely no calling can be more honorable than that of house-mother. No career requires more varied talents. She must not only sweep, dust, and flood the house with sunshine to maintain that cleanliness that is next to godliness, but also provide that sunshine of the soul that shall drive out the weariness and disappointment which daily cares bring. She it is, who by her tact must weld the often discordant elements into one homogenous whole. She must understand the needs of each, and provide for their wants, physical and mental. Hygienic food suited to maintain, and develop, bodies of different ages and diversified needs, mental foods for enquiring minds, rest for weary toilers. All these things must she do and not leave others undone. Add to this the absolute necessary social duties that come to even the most secluded woman, and well may we stand appalled at the mountain of work and ask, how can the burden be lightened? First we would suggest the law of order be enforced, John says, "My work is most important, we must attend to it first, and have our meals when convenient," and so upsets all plans by his irregular habits; yet he somehow finds time to feed his stock regularly, and would resent the idea that one time would do just as well as another for feeding. The children drop their garments anywhere for mother to pick up. Some one is always hunting something and losing his temper because it can not be found. Disorder is an insidious, paralyzing poison that creeps into a home. It is made up of a swarm of little things too minute to notice, but which in the aggregate banish peace and comfort, just as a swarm of little gnats can destroy the pleasure of a days outing.

The establishment of law and order requires effort. There must be a place provided before things can be kept in place, but it pays a thousand fold in time and strength saved. Not only should meals be regular, but the food while it must be nourishing need not be so great in variety, nor of a kind requiring so many hours to prepare. In this respect farmers' wives are sinners above others. When first I went to live in the country I gazed with wonder and amazement, at the quantity and variety of food set before company and even before the family, and I confess that after an experience of twenty years

I still fail to see the necessity of pies, puddings, cakes, eight or ten kinds of sauce and every known vegetable, besides meats and bread to assure friends of my hospitality. We might with advantage dispense with some of this superfluity and save time and strength to keep abreast of the times and so be able to regale our friends with an occasional new idea. If we did not feel it incumbent on us to entertain so lavishly that it brings more pain than pleasure, we might enjoy our friends oftener and so banish that isolation that makes farm life hard to bear.

We impress upon our children the importance of mental culture, urge them on in their school duties, that through knowledge they may out-strip their fellows. Perchance we even make apparent the high place that spiritual things hold in self culture; but do we not fail to impress the thought that the basis of all success must be good physical health. A body which readily and painlessly responds to the owners will.

It is true that some of the world's great ones have succeeded in spite of physical infirmities; but at what an expense of nerve force? How much more and better work might they have done had they not been thus handicapped? In the absence of a strong body, full of pure blood, the mind must ever fall short of its highest possibilities. We do not give thought enough to the chemistry of food. Our girls are learned in all the wisdom of the ancients, can speak in various languages, and have the "ologies" at their finger ends, but how many of them, think you, could tell what foods best nourish developing bodies and how to prepare them so as best to renew spent muscles or exhausted nerves. The longed for and dearly earned diploma does not usually enable them to tell why they have the headache nor how to cure it. Said a prominent physician: "America is suffering from two evils—indigestion and alcoholism, both due to the same cause—the inability of the women of the middle class to provide wholesome and nourishing food." We burden ourselves to provide that which is not food, which contains no nourishment, but merely gratifies the palate and creates an appetite which craves condiments and stimulents. For this we waste valuable time and vital energies, and our reward is often only a "harvest of barren regret." Nor is cooking the only work a farmer's wife might abbreviate. Why not avail ourselves of labor-saving devices. That is the way men do ten times as much as their fathers did. What a boon a \$5 dish washer would be in any farmer's kitchen. Then there is the laundry work. Of course you have a machine and wringer, but if you will study the chemistry of dirt you will find ways of shortening and lightening that process. What if it does wear out clothes quicker, remember that muslin is cheaper than nerves and back-bone. Why should you stand long hours over an ironing board when kitchen towels, sheets and other coarse cloths can be folded away just as sweet, and clean, and serviceable without that additional labor. You say your mother did not raise you that way. Well, neither did mine. Possibly had she so saved her strength, your endurance and nerve force would be greater. You do not weave your own clothes because your mother did; you have found an easier way and a better. While I would not advocate untidy ways nor neglect essentials that add to home comforts, I can with perfect equanimity destroy the traditions of the elders in regard to non-essentials. I am heterodox enough to believe that even an occasional cobweb in one's home is no greater disgrace than so many cobwebs in one's brain. Study to make your work as easy as possible; make your brain save your feet. Deliberately rest at least ten minutes when you feel worn out. While you churn, sit down and read; you will not notice how long it takes to do the work and will be rested in body and refreshed in mind when the butter comes. Treat yourselves as well as you treat your neighbor, and don't grumble about your lot. It has its compensations. It is a constant query, "Why do our boys and girls leave the farm." It is because we are always saying what a hard life farming is. The boys learn to believe it and fly to town to harder duties and poorer living. Our girls believe it and take to school teaching and factory work, and don't always better themselves. By precept, by example, by education, awaken a love for farming in your children. Tell them of the great men who tilled the soil. Magnify your calling. Then if some of them have no taste for farming, don't make their life a burden by your reproaches. Find out their bent

and as much as in you lies develop it. Further their plans, and ten to one they will think better of you and find the old farm home the most attractive spot on earth.

Farming has its drawbacks, like every other calling. You have to get up early and work late, but you don't have to worry and scheme for customers like the merchant. You know the market awaits your crops. If your liabilities are burdensome, work away; the land is good for it. It won't get shop worn nor go out of fashion and depreciate in value. If the boys want to go anywhere a team and conveyance are ready and no livery bill to pay. If the girls want a day off there is no danger that they will lose their place. If you want fruits, vegetables, meats, go to the store room; it is full, though your pocketbook may be empty. So count your mercies and be content. Fathers, don't be so greedy for more land. Treat your families as well as you do your stock. You spare no expense to procure growth there. Do as well by the boys and girls. Provide good books, magazines, society, everything good that they would find in town. Take time to welcome their friends, and when there is anything worth seeing or hearing, provide a way for them to enjoy it. It is no greater hardship for you than for the fathers in the town to provide ways and means. Show your children that you are interested in them, that you want them to have a good time, and don't ask too much of them. Remember everyone has his weak points—everyone his faults. We may emphasize these if we choose by making the worst of each other or we may make the best of one another by loving what is loveable. So will love flow back to us, and home life, with all its burdens and engrossing cares, will be a pleasure. So shall we build an attractive home. A home worthy the name in all its complex parts. One that shall be sweet, an abiding memory; a helpful inspiration to all its members so long as they shall live. One that shall be a continuous object lesson to all who enjoy its benefit; qualifying its inmates to be the center of real home influence, thus transmitting your home-making virtues to yet other centers, and thus on and on ad infinitum in ever-widening circles long after your toils are ended.

GOVERNMENT IN THE HOME.

By Mrs. M. W. Harrison, of Granville.

One of the most important subjects that can be discussed in a Farmers' Institute or any other convention, more important than Sugar Beet Industry, Feeding Hogs for Market, Country Roads, or Telephones, is the subject that has been given me this afternoon, for from the homes of our country come the men who shall discuss these subjects, and the training which they have received there, in their earlier years, determines their ability and capacity to deal with them, and with all other affairs of life. As we think of government in the home, how often do we see parents who have no idea of, nor care for, the responsibilities which are resting upon them. They enter the state of matrimony carelessly, know very little about managing the household, and less of child nature, and when the children come they are about as well prepared to govern them as the mother was who punished her baby when only a month old because it cried.

In considering the question, we ask in the first place, what is the object of government, and why is it necessary to have it in the home? Family training should be for two purposes. We all spend a short dependent period of our lives in the home and then, whether we will or not, we must come under the two governments prepared for us—the civil and the divine. The state has to take the consequences of the family government for the character of her citizens, and God will hold us responsible to Him for the early training of our children. The object of all family training then, is to fit our children to be good, loyal subjects of the State and of God. This is the position in which the parent stands before the child—as magistrate and as Deity. Viewed in this light, we can not be too careful in the management of the little ones intrusted to our care.

Infancy is helpless, and from the first, children have certain rights which parents are bound to respect. The subject is not always treated in this light. It is sometimes thought that only parents can demand rights from children, but this I think, is one of the greatest mistakes in home government. The first of these rights which the child can truly demand is support, this of course, under good, healthy conditions decreases as the child nears maturity. The second care is for health, and this is very important. Good, warm clothing, proper exercise, pure, wholesome food, prompt attention to defects in speech, voice, eyesight, hearing, care of teeth, cleanliness of person, plenty of sleep in well ventilated rooms, and many other questions of health, are subjects which should enlist the attention of every parent, for defects in all these particulars act upon the physical constitution, and whatever weakens this, interferes with the rights of the state and the claims which God has upon man.

The third right which children may expect from parents is mental culture. Little can be done for the good of the state or the honor of God by the weak minded and ignorant, and the whole end of family government may easily be defeated by a faulty or a neglected education. Children should be placed in the best schools practicable and their progress watched. Care and interest be taken in their lessons at home. How quickly a teacher knows which children under his charge have parents who are interested in their work. But mental culture does not mean simply attention to the studies taught in school. The child's mind should be directed in habits of observation, powers of reasoning and deciding for himself, in the choice of literature which he reads, and in his associations.

Fourth, children have a right to expect that their parents teach them habits of industry and economy. No matter what position they occupy in life, be it high or low, they should be taught the value of time, labor and money. The spendthrift and the indolent are useless, both to the state and the church, and as has been said, neither man nor God gets any good of them, except in setting them as a warning to others. These habits can and should be started in very early life, and the parent is responsible for them.

Fifth, as the child is to become a citizen of the State in due time, there should be direct training for all this through his minority. He should be taught lessons of patriotism and sacrifice. How he can advance his country in civilization and freedom and defend her political institutions. The somewhat popular idea nowadays that the end justifies the means in political problems, is not the one to be taught at the fireside. No parent has done his duty to his child if he has not cultivated this patriotic spirit, and the faculties which are to carry it out in life. Children also have a right to expect in a family where there is more than one child, an equality of privileges. "Let parents be the same to all their children, common in their care and in their love of them," was said by Thomas Southern, and is worth considering.

The last point we would mention in the demands which children have a right to make upon their parents is, that they be taught a reverence for God, and be trained for that happiness on earth which comes only from a moral, upright life, and also fits them for a higher life which we hope to live beyond. The child that is irreverent is so through the neglect or fault of his parents. There may come a time when he will seemingly depart from his early training, but in his old age he will not forget it. Every child has a right to expect from his parents a good and holy example, one of patience, love, counsel and sympathy. It is an old and true saying that "children have more need of models than of critics." If the child is anything at all, he is an imitator, and his first years are full of an honest, faithful trust in the omnipotence of his parents. While it is right that this unlimited power ascribed to them should be dispelled, as it soon is, it is a sad thought that the example of parents is so often such that not even a child can look up to them with the respect and reverence due to their position.

This thought has been expressed by Payson in the following words: "What if God should place in your hand a diamond, and tell you to inscribe on it a sentence which should be read at the last day, and shown there as an index of your own thoughts and feelings, what care, what caution would you exer-

cise in the selection! Now, this is what God has done. He has placed before you the immortal minds of your children, more imperishable than the diamond, on which you are to inscribe every day and every hour, by your instructions, by your spirit or by your example, something which will remain and be exhibited for or against you at the judgment."

Parents, have a high ambition for your child. You may be criticised for this, but this is one of our own rights, and if properly exercised, it is a duty. Nothing so unfits a person for entering upon the cares of life as the constant feeling fostered in the home that he is incapable of acting for himself, or meeting his fellowmen on terms of equality. Wordsworth says: "In all men sinful is it to be slow to hope, in parents sinful above all. Don't be afraid to speak words of encouragement and praise. I have known homes where this was never done, for fear the children would become conceited, and if they wished to know whether they had met with their parents approval or not (disapproval was given readily enough) they had to inquire of some other person what father and mother had said in regard to some effort they had put forth. While I would not place a premium upon conceit, a certain amount of something of that kind is needed in this world to give us that selfreliance which is necessary in order to meet the problems of life successfully.

Parents, expect and exact from your children respect and obedience. This is our right. I have already indicated the way in which we may inspire respect, *i. e.*, by setting a good example before them. The question of obedience is perhaps a harder one to solve in all its particulars. My opinion is this. that home government does not consist entirely in exercising positive authority and securing obedience by commands. Let us teach the children by example and precept, affection for us and for one another, and a kind regard for the feelings of humanity, be it man or beast. The poet has told us:

"Hold diligent converse with thy children,
Have them morning and evening round thee;
Love thou them;
And win their love in these rare, beauteous years,
For only while the short-lived dream of childhood lasts
Are they thine—no longer."

A WEEK'S ROUTINE IN A FARMER'S HOME.

By Miss Maud Hall.

The farmer, the chief of our nation,
The oldest of nobles is he,
His patent was granted in Eden,
Long ages and ages ago,
The farmer, the chief of our nation,
Three cheers for the plow, spade and hoe.

—*Farmers' Wives and Daughters.*

In behalf of the Farmers' Institute of Douglas county, and as chairman of the woman's department, I extend to you a hearty and most cordial welcome.

Reared on the farm, amid both its pleasures and disadvantages, and joined by a community of aims and interest, it is with heartfelt gratitude upon our part that we are permitted to take our stand beside the progressive farmer, and discuss plans whereby we may ameliorate our conditions and make home happier and brighter.

Only a few years ago, woman was held subjected and in servitude; today she stands as a crowning light, capable of battling for life unaided.

Let me tell you something of Illinois: We have 56,000 square miles of land; on these plains we raise enough to clothe and feed twenty millions of people. Within this State near the central part, is Douglas county, small in size as compared to some, but ranking first in broom corn, honorable farmers and prudent housewives. The old saying that "man's work is from sun to sun, but woman's work is never done," is certainly true of farm life. No matter how early we rise or how late we may labor, each day brings with its dawn new duties, new labors and new possibilities.

And now that the year of 1899 has just been ushered in, let us stop one moment to consider, "what did I do last year which I needs must do this." O, you answer, "life is but the same path with an occasional stumbling block. Each season has its special work which must be done." "How can we lighten our labors," "if we could but do more," are frequent phrases upon the farmers' wives' lips.

The three winter months are never so busy, the work is not so pressing, yet our hands are never idle; we can spend these few weeks sewing, knitting, reading, looking over seed catalogues, collecting garden seeds, etc.

Reading will be found very beneficial during the long winter months. Procure good magazines which contain articles on cooking, home decoration, health and hygiene; even if we are educated along these lines somewhat, some timely suggestions from those who have studied and thoroughly mastered these subjects, will prove very helpful.

During the spring months, the garden must be made. Although you may have help from the men, yet a woman plans where she wants her seeds sown; when sown, investigates the best methods of sowing, covering, and after seeds have sprouted, the best methods of cultivation. The making of new flower beds, the repairing of old ones; the transplanting of flower bulbs must not be neglected, for every blossom planted will bloom again in the heart; every flower about a house certifies to the refinement of someone. Every vine climbing and blossoming tells of love and joy. Remember that everything of beauty tends to the elevation and uplifting of mankind.

Another important duty of the farmer's wife is poultry raising. Hens must be set, new eggs purchased, new nests made, houses cleaned and renovated; nothing adds so much to the health of the fowls as pure, clean houses and plenty of grass.

Summer, as it approaches, demands both our time and patience. As the harvest comes, father must have more help, hence it necessitates more cooking and bed-making; also the canning of fruits, corn and tomatoes, preserving and the making of jellies must not be neglected.

A great many of our city friends, wishing to free themselves from the dust and heat of the city, pack their trunks and prepare to spend vacation with us; upon leaving, they assure us they have had a delightful visit, but when home reassure their friends that the farm is perfectly lovely, but, oh, so lonesome. But we maintain it is anything but lonesome, because our heads and hands are busy.

Autumn comes, bearing on its bosom the ripened fruit and grain; apples must be picked and placed in the cellar; potatoes and sweet potatoes dug; children must be prepared for school, for the farmer, realizing what few advantages he enjoyed, gives his children every opportunity in his power.

After the children have gone, mother has all the steps to take, hence the necessity of having things conveniently arranged. Don't think because you live on a farm, you can't have a few comforts. Happiness should be the object of life, and if life on the farm is truly happy, the children will grow up in love with the meadows, the streams, the woods and the old home. Around the farm will cling and cluster the happy memory of those delightful years.

* * * * *

Taken all in all a farmer's life is one of work, pleasure and progressiveness. Their motto is "wear and not rust out." Our progress has been great and our possibilities, kind friends, are still greater. Since this is an enlightened age, the farmer and his family must be, will be and are up and abreast with the times. Agriculture is the basis of all wealth, prosperity and luxury; there is a quiet about the life of a farmer and the hope of a serene old age that no other business or profession can afford. A professional man is doomed, some time, to see his powers waning; he is doomed to see stronger and younger men pass him in the race of life. He looks forward to an age of intellectual mediocrity.

He will be last where once he was first. But the farmer goes, as it were, into partnership with nature; he lives with trees and flowers, he breathes the sweet air of the fields; he has no constant strain upon his mind; his nights

are filled with sleep and rest; he watches his flocks feed upon the fields; he hears the pleasant rain falling upon the waving grain, and in the words of the poet sings, "God is nature, God is love."

Young man, don't leave the farm for the attractions of the city; father is growing old, his place must be filled by someone, who can or who is more capable of taking up his life's work than his own flesh and blood? The time is near at hand when the great mass of people will bow down to thee and say, "By thy labor thou hast wrought wonders and thou shalt deservedly stand as the pride of the nation."

Farmers' daughters, don't envy your city sisters; perhaps their feathers are finer and gayer, but when man chooses a helpmate, he seeks the heart and the hand. You are the joy and pride of your brothers, indeed the queen of the household; then ask no greater blessing than by your kind and sympathetic guidance you may lead someone into the path of virtue; it is true that life is a hard struggle, but remember as you toil day in and day out to make home happier and brighter, "there is no crown without a cross, if no battle we obtain no victory."

Farmers, you stand as the most independent class of people. It is from the farm that the truly great men have come; let me say that they have come from those who have the principles of honesty, integrity and justice instilled into their very life's blood.

Farmers' you are honored and respected; you have ascended the ladder of success and prosperity only round by round, yet by your persevering effort you have gained the respect of all mankind. The world no longer judges a man by the clothes he wears, but by the life he lives, the influence he exerts.

Farmers' wives, heretofore you have been looked upon as a secondary and dependent creature, but now with the manifold domestic improvements, woman can accomplish much more than in the past, hence she has more time for the cultivation and improvement of her own mind and is better fitted to be a mother to her children. You spend the greater part of your life working in behalf of loved ones, but remember it is only when we forget self and work for others that we experience true happiness. When woman was created she was not taken from Adam's head, hence she is not to rule him, neither was she taken from his feet, which suggests she is not to be trod upon, but having been taken from his side, signifies she is his equal, his helpmate.

A true woman is a helpmate. If she is good enough to do your drudgery, such as cooking, washing, ironing and the numerous other household duties, and you trust her to the fullest extent with your heart, don't hesitate for a moment to trust her with your pocketbook; she certainly deserves a share of the income without asking for it.

A house divided against itself can not stand, and there is no way in which peace and harmony can exist in so marked a degree in a family as when husband and wife are acknowledged as equals. They are bound by the same community of aims and interests, they have borne both life's joys and sorrows, they have met the problems of life with the same serenity; ought she not be considered man's equal in person?

"The life is best wherein we give
A thought to others sorrows,
Forgetting self we learn to live
And blessings born of kindly deeds
Make golden our tomorrow."

INDUCEMENTS OF FARM LIFE FOR A YOUNG LADY.

By Flora I. Iliff, of Washburn, Ill.

It is utterly impossible, within the limits of this paper, for me to set forth all the allurements and attractions of farm life for young women. However, I trust you will bear with me while I present for your consideration a few ideas along that line, promising you I shall try to present it as much like a tack as possible, short, brief and to the point. According to Cowper, farm

life should have many inducements over city life for either sex, because God made the country, and the town with all its massive structures and wonders, we must acknowledge after all, was made by man. But remember, when I speak of farm life and farming, I have in mind an up-to-date farm, with average improvements both within and outside the house and located in Marshall county, the best county in Illinois, if you please. Emerson, I believe, was most too partial when he said the first farmer was the first man, but should this be so, how about that first farmer's daughter? Pardon me for taking you on an imaginary trip, but be not weary while I take you to the early settlements of America.

Standing on the banks of the James river, we will watch with interest the landing of English immigrants. One after another, settler after settler steps proudly on American territory. We see the proud, youthful steps of the English youth and notice the haughty mien of his father and older comers, but nevertheless we stop right there and brand the colony as a temporary failure, for we waited for something which in that ship and with that colony cometh not, namely the young lady. Let us journey on and soon many miles north we see the proud old historic vessel, the May Flower, drop anchor off the New England seacoast, and when on that snowy December morning we watch the passengers come forth from their frail vessel, we see along with the hoary heads many an innocent youth and maiden to help make American farm life a pleasure and not a bugbear, so with the prosperity of this colony you are all acquainted. See how the hardy Puritan people with their broad ideas began then and there paving the way for America's greatness; and give the young Puritan housewife her due share of the praise. The young lady's presence in that vessel meant more to the Puritan than we can well imagine. Why should we wonder that he took his ax and went to work with a hearty good will to clear off a small area for a home?

Now let me return to our Virginia friends. We find the people miserable. They were nothing but a great dissatisfied crowd of bachelors. They thought little of competency or a home. But hurrah! We cast our eyes seaward and we notice a crowd of anxious, eager young planters deeply concerned on the arrival of an incoming vessel. No wonder, for we are informed that it has on board more than a hundred young ladies, for whom farm life had an attraction, ready to become the wives of planters, who will donate to the ship owners 150 pounds of tobacco in payment for transportation. No wonder that mob of bachelors was concerned. The prosperity of the Virginia colony dates from this time.

Now my friends don't be skeptical. The young lady is an absolute necessity on the farm, and farmers and farmers' daughters always deem it a pleasure to be where they are useful. Let us score as our first inducement that "we" are necessary, and farms and some farmers would amount to very little without us. And owing to the young ladies' desire for farm life, many a young man has been enabled to start on the long road to prosperity. 'Tis a deplorable fact that some people (usually the city belle) think that one who would engage in farm life and lives in the country is shut off from the world and in the worst state of isolation and away behind the times; but leaving it to the common sense class, we agree jointly and severally that such ideas are vague and wholly without foundation. Nothing of importance can happen in the neighborhood or neighboring towns but what we know it as quickly as city folks. All we need to do is to step to the telephone, call up No. 4 or No. 6, whichever the case may be, and we know all about it. Secondly, it is thought by others that the facilities for school and educational life of the farm is very limited, and the chances of the young lady of the country ever climbing the ladder of success are very poor when compared with the opportunities of her city cousin. To this permit me to give emphatically a negative answer.

The country and the farm is God's school. And point me, if you choose, to a grander field of knowledge than the farm affords. Do not we walk from infancy upward hand in hand with nature? Show me, if you can, a better place than the farm for training one, either lady or gentleman, in the most essential of all habits, namely, those of order, usefulness, industry and home-

making. Has not the little red school houses and the country in general furnished all men and women, truly great? Never yet has our grand and noble nation been in need of a Washington, a Lincoln, a Garfield or a Clay, but they were found in the country, and according to Whittier's "Barefooted Boy," it was knowledge never learned of schools that prepared and fitted them for their noble work. As a young lady of the farm, it fills my heart with joy and enthusiasm when I point with pride to the immortal character of an ideal country girl, namely, Miss Frances E. Willard, whose memory stands foremost in the mind of every true citizen, whether lady or gentleman. The country fitted her for her noble and godly career, she having been born and reared on a farm. Until her womanhood she was called a "Tomboy" by the vain city girls who were her classmates in college, because she spent so much of her time out of doors. While on the farm she was a plain, romping country girl; followed the men at the plow, assisted in the planting and was a companion to her brother Oliver, in all out-door work and amusement. Her first prize as essayist was given her while living on this farm.

Thus it is, that the farm life, by influences brought to bear in girlhood, fits one for such grand and noble work. Where, my friends, is one endowed with greater independence and freedom than on the farm? There, nature is the teacher, and the city schools with all their higher branches, "as they say," are only imitators. Farming today is pursued both as an art and science, and as you look around you in this audience, remember that both ladies and gentlemen herein represented, if successful farmers, are considered, indeed, skilled artisans just as much as he who paints the grandest picture.

At the present time we turn our thoughts backward and in farm life we see a marked improvement over farm life of former years. Each year we are blessed with new inventions that lighten the labors of us all. The spinning wheel is carefully stowed away in the dark corner of the attic; the loom is no more; the improved sewing machine saves many a tedious hour at the needle. The cream separator does away with the usual two hours work each day with milk pans and heavy crockery. Many more are the inventions which help to make the farm house an attractive place for young ladies.

The "country girl" of today, as she is called, has a wider vision than did her predecessor, who was so busy with her spinning wheel, weaving, etc., that she never looked beyond the dooryard or at the most the county seat. Then her most cherished ambition was to be another like her mother, and eke out a feeble existence in the same narrow circle. Now we have all the good things possessed by our mothers, and innumerable additional attractions are set forth by farm life, until Cowper was justified in saying, "How sacred and how innocent a country life appears, how free from tumult, discontent, from flattery or fears. Equally so with Henry Ward Beecher, who said, "He who would look with contempt on the farmers' pursuit is not worthy of the name of man." Well might we feel proud and think the farm attractive, for, from time immemorial farmers (and their daughters) have been prime favorites with the poets, among whom we place Longfellow, Lowell, Goldsmith, Emerson and Whittier, who said in his corn song:

Let vapid idlers loll in silk
Around their costly board;
Give us the bowl of samp and milk
By home-spun beauty poured,
Where'er the wide old kitchen hearth
Sends up its smoky curls;
Who will not thank the kindly earth,
And bless the farmer girls.

The farmer girl today is not considered as a slave, but is rightly looked upon as equal in every way and able to cope with her city acquaintances. Above all, the crown in her maidenly diadem is that of being a good cook. We love the name of farmer and we can not help but feel that when farmers

are talked of as an educated, thinking, industrious, patriotic people, that the farmer girl is counted in with the rest, and no country could exist without us. In conclusion, I will leave you with the worthy words of Goldsmith, who said:

Ill fares the land,
To hastening ills a prey
Where wealth accumulates,
And men decay;
Princes and Lords may
Flourish or may fade:
A breath can make them,
As a breath has made:
But a bold peasantry,
The country's pride,
When once destroyed,
Can never be supplied.

WOMAN ON THE FARM.

By Mrs. Belle Hamill.

Mr. President, Ladies and Gentlemen:—I want to express the pleasure I find in being counted worthy a place in the Clark County Farmers' Institute. I am grateful that I have a right to be here by vocation. Many here know it was not always thus, for my childhood days were spent in this city of Marshall. I have about gained my majority on the farm, however, as I have been there eighteen years. I don't know, as Bro. Sheapley said, that apologies are fashionable or whether they are used in polite society. I fear some will think before I get through that I ought to apologize in the words of that pithy little poem we learned years ago, "If I chance to fall below Demosthenes and Cicero don't view me with a critic's eye," but remember I am a plain busy woman known as a "Factor on the Farm."

I shall make no sarcastic comparison between man and woman as factors. It is necessary that both work in perfect harmony to achieve the best results.

If I should appear to make woman a greater factor, I wish to remind the men of a couplet I learned years ago and took as my motto: "Be grateful for the gift that you possess, nor deem a rival's merit makes you less."

The phases in which women appear as factors on the farm are so many and so varied that I find it difficult to classify them. As has been written:

"We talk about a woman's sphere,
As if it had a limit;
There's not a joy, a weal or woe,
There's not a whisper, yes or no,
There's not a life, a death or birth,
That has a feather's weight of worth,
Without a woman in it."

As homekeeper she is an important factor, for she is cook, laundress, nurse and housemaid, all in one.

Who can estimate the importance of her work as cook? Her power here is greater than that of any general in our armies. Woman holds in her hand the physical life of the world.

Science has clearly demonstrated the fact that much if not all of the crimes and bodily cravings for nicotine and intoxicants are induced by ill-nourished bodies. If all were taught to use healthful, well-cooked food crime would decrease.

Three times a day the morals and health of all are at the mercy and practical judgment of woman. The world's character is what its foods make it. Indirectly, then, she controls its loves and hates, its fears and hopes, its joys and sorrows. Viewing it thus she sees how important it is that she instruct her children in the related sciences, chemistry and hygiene, and lead her husband, who perhaps has been pampered by a doting mother and fed on pastries and pies, to see that she is doing him a kindness rather than an injustice by feeding him on such foods as whole wheat bread, fruits, vegetables and milk.

You will know that I am speaking of the new woman—she, who, during the last fifty years has changed so rapidly from her semi-servile state and taken advantage of new conditions and opportunities. The widening of any human being's thoughts transforms him into a new being. Prior to that her christian duty seemed to be to obey Paul's word's implicitly. The young man who sought to become wiser than his father was praised; while the young woman was sedulously taught that the sphere her grandmother had filled was the only sphere for her. That the education her grandmother had was sufficient for her. It was impossible for man's thoughts to widen and woman's be confined in the same old, narrow limits.

True, it required the stuff of martyrs to draw upon one's self the malignant criticism of the world by seeking for equal knowledge; yet many possessed that spirit and today she stands ready to learn and to do anything that makes the world purer and better. We expect soon to see the day when all women may have the opportunity and be willing to learn the proper food and the proper way of cooking the same. Ruskin tells us that cooking combines the skill of the chemist and the economy of our great-grandmothers.

It has been said, "The hand that rocks the cradle is the hand that rules the world." It can as truly be said the hand that wields the cooking spoon is the hand that rules our lives. Let us agitate this question of healthful food, even at the risk of being called cranks, for surely the time has arrived when we must make proper food for man as important a study as proper food for cattle, hogs and plants. These subjects are counted worthy of study in the colleges of the great State of Illinois and chairs are endowed for their study. The health of our children is, or should be, of more importance than our stock. In short, the woman coupled with the man on the farm ere long must be the factor that will compel the passage of pure food laws, or adulterated foods will bankrupt the farmers' products.

As nurse and housemaid she is an important factor in attending to the proper ventilation of living and sleeping rooms and in keeping them neat and clean, for they must be kept free from foul odors that produce the death-dealing microbes. In our modern homes, with the cheerful, health-giving fire-place gone, as great a knowledge of hygienic laws is required as in cooking. We do not hesitate to express our conviction that the unhygienic principles involved in the construction of the modern homes are the prime causes of all forms of throat diseases; also of consumption and dyspepsia, these fell scourges to the human family from which cause probably a greater number perish than from any other.

It would seem that if society has a moral right to compel men to train themselves in the use of the sword and musket in order that they may be able to meet and repel the onslaught of war and conquest, and thus save their children from bondage and disgrace, it also has a right to compel them to so train and govern their bodies hygienically as to repel the fiercer onslaught of foul diseases and thus save their children from the darker bondage of inherited weakness and premature death. On the garnished walls of our homes there appears to him who cares to read it, a handwriting that hints at possible doom. In the dim, uncertain shadows of the hour a finger points to the deserted banquet halls of home and nation.

The physical weakness, especially in woman, in every age has been the almost invariable warning of a nation's downfall. And there are indications in this direction that may justly excite and alarm. These should not be found in the rural home surrounded by the bright sunshine and the Creator's purest breezes.

Woman is an important factor out of doors as well as in the house, in raising the poultry, attending the cows, and many other things. I am not going to give you statistics as to just how many dollars she makes out of her poultry or how many pounds of butter it is possible for her to produce. I never was very good at remembering dates or figures, though, as people commonly express it, had I taken after my grandmother I could readily give you dates and figures, as she was a marvel in her day. When a child I heard her tell how many dozen eggs she sold at a certain store on a certain day. All I remember exactly, is that the eggs brought two cents a dozen. Woman would not figure as a very great factor at that price nowadays.

The poultry on many farms of today buys all the groceries, the new cloaks, and spring hats, the coveted books for the boys and pays for the music lessons. In fact, I heard how a flock of turkeys in a year or two bought a fine surrey for the farmer and his family.

The patient cow must not be slighted. Most of the luxuries in the farmer's home are there all because he possessed a flock of hens and a docile Jersey. Often when the chinch bugs and drouth have cut short the corn crop and wheat has been a partial failure, the cows and poultry have been the farm's sole source of revenue, and in successful years the women have paid the running expenses and the returns from the farmers' crops have gone toward paying off the debt on the farm or in building a new house, or in putting a new porch or roof on the old one. Methinks I hear some one say, "Yes, but woman is in no wise a money-making factor. She pays no large debts." True, but take the wife away from the home and you soon realize how much of a factor woman really is. That "a penny saved is a penny earned" is no truer anywhere than on the farm. She takes care of the dimes and the dollars flow in.

I remember a home where the mother and daughters were not considered as being helpers of any consequence. No conveniences were supplied them in the home, no labor-saving machinery except a clothes wringer; while on the farm every machine devised, from a hedge-pruner to a binder, was purchased for the father and the boys.

The younger sister was soon borne to her last resting place in the silent churchyard; the older one went to a home of her own. Soon the silent messenger called the patient, meek little mother from her toil to come up higher and receive her reward. The wife and mother had never been thought of as having added to the revenue of that family, but let us notice how much she had really saved. A housekeeper was hired at \$1.50 a week (and she was cheap at that) and a girl to help at \$1.00 a week. The garden, which the wife had tended with no help except the first plowing and which supplied so many appetizing and healthful dishes, was no more. The poultry and cows ceased to even supply the home needs, and the husband at last saw how his wife had in reality been the greatest wage-earner on the farm. And most of you men are willing to admit that woman is no small factor when you wish to consult some one about a subject. True, you don't always agree; but if the plan proves a success, you can congratulate yourself; if it turns out a failure, what a satisfaction to you to know that she was an important factor in the transaction.

Many healthy, ambitious women, by their own labor, plant, cultivate and gather their patches of berries, grapes and currants and thus have an abundance for home use, and often derive no small profit by selling the surplus to their less fortunate neighbors. I think if the more delicate would do a small portion of this work it would be well. It puts new life into their blood. Out in the sunshine among the blossoms and fruits many who think themselves but a bundle of nerves may get a new lease of life. It is a rest from the incessant making and ironing of tucks and ruffles. Thus they live with nature and if they have the courage to use nature's foods, which science teaches us are the grains, vegetables, fruits and nuts, blessed is she and thrice blessed shall her children be. * * * * *

DOMESTIC EDUCATION OF CHILDREN.

By Trophy White, Clinton, Ill.

Much has been said and written in condemnation of the too-common system of education which deals with the head only, leaving the hand untrained, and results in graduating young ladies "too highly accomplished to be capable of engaging in the practical duties of life;" yet too much can not be said in disapproval of the contracted views and apparent lack of right ideas respecting individual responsibilities which lead so many women to look with contempt and dislike upon that department of labor, upon which, more than any other, depend the health and happiness of the family—that of housework. Homemaking, which in its highest sense is one of the most truly elevated and noble of all human pursuits, necessarily involves a proficiency in the art of house-keeping.

Education in its broadest sense is three-fold, an unfolding and development of the whole nature—a culture of the head, the heart and the hand.

To connect the idea of education wholly with the instruction given in the school room, and the accomplishments acquired under special masters is indeed a mistake.

The larger part of the child's real education comes from other sources than the school or college. Nature, environment, and his own inward experiences are among the child's most constant teachers, and the home with its varying details of every day life is the best of schools.

Florence Kelley, of the Hull House, Chicago, in an article entitled, "A Lack in Public School Education," says: "The subjects which normally occupy happy women to the point of monopolizing their attention are food, clothing, shelter and the care and nurture of children. But the curriculum of our graded schools excludes these subjects, and substitutes for them the study of words and numbers as adapted to retail stores." Cooking, sewing, designing garments, furniture, hygiene in practical relation to food, clothing, ventilation, or the care and cleanliness and rest of little children; is there any graded school which deals effectively with any of these matters? Hygiene, it is true, is taught out of a book, to the relatively small number of children who persist into the higher grades, but this is the small minority of children, and the teaching is far from vital or immediately valuable. Little girls, and boys, too, in the primary grades could perfectly well be interested in their clothing, in the questions, why dark clothing is more serviceable than light, why woollens are more wholesome than cottons for people who are doing hard, bodily work; and why cleanliness is needful for the health of the skin, especially in the case of infants and small children.

In the fifth grade the children are already old enough to understand and take a keen interest in the simple principles of laundry work, and their arithmetic might well concern itself with the cost of foods, the length of time a garment may be expected to wear, as a factor in determining the relative prices of goods, the cost of daily chewing gum and cigarettes compared with the cost of books bought at regular intervals. The fact that the technical subjects referred to as suitable for young girls are today repulsive rather than attractive to them is a severe indictment against the work done in the schools; for rightly taught, these subjects are more absorbingly interesting than any others, to young girls."

It is possible that Miss Kelley may know whereof she speaks.

Many parents overlook the value of domestic work in the education of their children. Mothers think, "Oh, the children will be young but once; let them enjoy themselves; I do not want to make them old before their time by compelling them to work." Fond, mistaken parent? This kind of devotion is by no means conducive to the best good of the children, and too often results in such an encouragement of selfishness in their character as to demand continued idleness and maternal servitude even after the age of maturity has been reached.

As a help to the child in overcoming that most common of all faults, selfishness, teach him active service to others. If we have to deal with a child in

whom the selfish predominates strongly over the unselfish motives of action, we must seek in the remote corners of his nature for some regenerating spark of feeling. We may find it in reward of patient search in the child's love for something or somebody, which may be used as a wedge to open his heart.

The desire to be of use in the world, the joy of helpfulness should be among the first principles inculcated into the child's character and should be put into practice in the family world by which he is surrounded at as early an age as possible. In no way can this be more forcibly taught than by a share in the performance of the common duties necessary for the proper conduct of the home. In doing work for the benefit of all, the child not only comes to feel that he has a niche to fill in the world, but is learning from day to day, that beautiful lesson of service to others which shall aid him to fulfill the law of Christ: "Bear ye one another's burdens." Not only this, but as he works, his powers are being disciplined so that he is gradually attaining to greater capabilities and more efficiency, for, as someone has aptly said: "To do any work thoroughly increases the capacity for doing other work." The variety of duties necessary in the care of the home and family offers a broad field in manual training. The knowledge which may be acquired in connection with such training, of the best methods of doing the different kinds of work, of the natural and chemical laws involved, of the reasons why, for health or economy, certain ways are better than others, affords a wide scope for intellectual training. Many desirable attributes of character are also the direct or indirect outgrowth of such training, for, "Squareness in things is not without relation to squareness in action and thinking." Training in domestic work helps to develop judgment, patience, accuracy, thoroughness, perseverance and responsibility. It teaches the nobility of labor, and aids in the formation of habits of industry. Coupled with the intellectual training of the school, it offers the child an all-round education, which either, alone, fails to give. "But," says someone, "there is so little time outside of school hours, available for work." True, and there is but little time given each day to any one of the studies in the school curriculum.

It is the little that is learned every day that in the end sums up to great deal accomplished. The child who spends but a hour or two each day, from the age of five to fifteen years, in domestic work, will by that age have become master of many branches of the art, if the instruction has been rightly directed. In the right direction of this instruction, lies the great secret of its value. The mere routine performance of certain household tasks, as a matter of convenience, and these too often, tasks which the older members of the family, not liking to do, have relegated to the children, is not sufficient. While it should be understood that any work which is for the common good of the household, is important work, the little pupils tasks should be varied from time to time, and made pleasureable and progressive.

True education in all lines is a process of growth and in domestic education, as in any other, there should be the opportunity afforded for climbing upward, not only from one step to a higher of the same grade, but from one department of work to another, as strength and proficiency are gained. The lack of this opportunity for advancement makes of the task, what it so often appears to the child—mere drudgery—work which has to be done, and, as she feels, the sooner the better. There is no joy in such work, because it offers no incentive for well-doing. Much of the pleasure which comes to us with work consists in the sense of satisfaction which follows the completion of a task that has been well done. It has been said, "The least thing thoroughly well done, complete, rounded, full, exact, gives pleasure; anything slovenly, slipshod, unfinished, is discouraging."

"But," says another, "when children are in school five or six hours daily, they ought to have the time outside of school hours for recreation." True again, but recreation is not necessarily time spent in play alone, an idle or leisure period when nothing shall be accomplished. Simply a change of occupation is recreation. Nearly all domestic work is healthful exercise of muscle and strength and it is the privilege of the wise parent to make it so pleasurable that children will enjoy a portion of their time spent in such work better than in all play.

The chief obstacle in the way of domestic education, comes through parents not realizing its value, and their disinclination to undertake the training of their children in this direction, preferring to do the work themselves or hire it done, rather than take the trouble of teaching the child. It does take time, trouble and patience to teach a child rightly to perform domestic tasks but so it does to teach him reading, writing or any other necessary thing. The child ought not for this reason to be deprived of the benefits that accrue from well directed domestic training.

There are mothers earnestly desirous of securing for their children that all round education resulting from the simultaneous culture of head and hand, who yet do not understand how to adapt their circumstances to such training, or who do not see how they can utilize the energy stored in the little fingers. To such I would suggest, make all things tend toward the end desired; begin with little tasks regularly performed each day until well and thoroughly learned; make these tasks pleasureable with pleasant, cheerful, companionship, bright, animated instruction so simple that it can be readily comprehended, good tools to work with, and hearty praise when the task is well done. Do not expect perfection except by slow gradual advancement. Give painstaking instruction, requiring the child to do the best he is capable of, but do not measure his ability by a grown up standard.

Doubtless much of the aversion to housework arises from a feeling that it is mere drudgery, needing only physical exertion and associated with weariness and pain, but if we consider that the health and character of the inmates of every home are dependent in the greatest degree upon the cleanliness of their surroundings, the wholesomeness of their food, together with many other conditions belonging to the province of the housewife, housework will lose its aspect of drudgery and become at once one of the most noble and responsible duties in life's field of action.

The very knowledge of this responsibility would suggest the need of a special qualification, a careful and thorough preparation for the work. By housekeeping is not meant simply a knowledge of the various routine duties usually devolving upon the housewife, the making of beds, sweeping of floors, and cooking of dinners, but a knowledge and practice of household labor in accordance with scientific principles which makes every department of housework a philosophic study, and every household operation replete with interest. It takes years of hard study to acquire sufficient perfection to succeed in any other department of life, but housekeeping is too generally looked upon as something that needs no special fitness, and can be acquired without much effort at any time. Yet for no other purpose is special preparation so greatly needed, nor are the requirements so varied and important. The person should be ridiculed who professes to be able to read a case in court without a knowledge of law, but we heard an intelligent and talented woman not long ago boast that she knew nothing at all of housework, but thought if she ever had any need to learn, a little common sense and a cook book would be all that was necessary. Proper food is the largest component in the health and good temper of childhood, the correct habits of youth, and the strength and endurance of later years; and there is abundant evidence that the great prevalence of intemperance, with its accompanying evils, is very largely due to the baneful effects of the indigestible, unnutritious foods which are daily spread before the majority of American people. How then, can we underrate the importance of the work of housekeeping, or the need of a particular preparation for its duties?

It is often said of a girl who finishes a high school or a college course, only to assume the role of housekeeping, that "she has just thrown away her education." This is indeed a mistake, for in no other pursuit ought an education to be brought into more constant requisition than housekeeping. A knowledge of scientific principles and physiological laws is eminently essential. Indeed, there is scarcely any branch of knowledge which may not be made to contribute valuable aid in the care of a home and the health and comfort of its inmates.

Both boys and girls should be trained in domestic work. Infuse into the children's minds the thought that no honest work is degrading; that it is

neither unwomanly to wash dishes or sew on buttons, nor unwomanly to drive a nail or weed the garden; that the ability to do the work, and the need of its being done, is the criterion by which to determine whether or not they shall do it. Little by little it prepares the growing child for the practical duties of life and brings him in contact with them as fast as he is qualified to discharge them. Work comes then to be welcomed as a blessing instead of to be dreaded as a hardship, and is made honorable by being honored by those who do it.

Psychologists tell us that the mind receives more impressions in the first seven years than in all the after years of life. This susceptible formative period belongs especially to the parents and the home. In these impressionable years the seeds of both good and evil take deeper root in the character, because the child is lacking in the power of resistance which comes with later years. Herein lies the parents' wondrous opportunity so to preoccupy the soil with good that there will be no room for evil; so to nourish and cultivate right inclinations that wrong ones may die out. Let the early years slip by unimproved and the whole after period of the child's life must needs be spent in endeavors to uproot tares and weeds which the enemy will not fail to sow while parents are asleep to duty. It is far safer and easier to prevent evil than to correct it.

Something will fill the time—if it is not good it will be evil. There is no surer moral safeguard than the wholesome occupation of mind and body. Active hands and minds will not find time to heed every temptation which the enemy suggests, but idle hands and brains are the tempter's ready tools.

Much of the danger which threatens our youth lies in the lack of training in some useful occupation.

Idleness is a plain invitation to vice.

It is the right of every child to be trained to individual independence. The sooner he can become self-reliant in the matter of his daily life, the sooner will he be able to realize his dependence upon God. The object of training is to make men and women who will be capable of happy employment in this world, and will be eligible for immortality; such men and women as God can use now, and whom he can enjoy forever.

Character is to be the product. The purpose is so great that we can afford to take note of the most trivial things in the necessary training. A tiny flaw in a costly mirror would not be tolerated for an instant, and it is God's plan that, by the coöperation of the human and the divine, the little child, in spite of all the evil that he has caught up, out of all the generations, is to be made perfect and presented before the eternal presence without spot or blemish.

DOMESTIC EDUCATION OF CHILDREN.

By Mrs. Naomi Williams, Putnam, Ill.

Madame President, Ladies and Gentlemen:—In attempting to present the subject assigned me at this institute, I wish to first thank the committee, who has placed so much confidence in my ability as to presume that I could do it justice even in part, and also I wish to say that I do not claim to be the originator of all the thoughts contained in my paper, as I have borrowed some from those whose ideas are unquestionably good.

Domestic Education of Children. A homely subject indeed, nevertheless a very important one. We as parents are all concerned about the higher education of our children—language, drawing, music, and other accomplishments, which are all proper and right if we are not working and slaving, denying ourselves of comforts, pleasures, sight-seeing, etc., to accomplish this end, for by so doing we lay the foundation of selfishness, the worst of all evils, the evil out of which all other evils spring.

A strong, well-preserved mother is more to a young woman to lean on for advice, help and comfort when she stumbles, as she surely will when she first

starts on that one great work of woman, "Home Making," than all the education that Vassar, and other schools of equal merit, could bestow. She may stumble, but will not fall if properly directed in the home nest.

Children's work should tend to symmetrical development of their bodies, and the more it takes them into the fresh air the better. Little children should be told explicitly how to do things: As they grow older, and as early as possible, they should be told what to do, and then be left to exercise their own judgment as to the best method of doing it. If children are never left to do this they will grow to manhood and womanhood with very little judgment. It makes a child respect work if you share it with him and gives him an intense desire to do it the very best way possible. Children can be taught when quite young to clear the floor of their litter. Provide a place for their play-things and then insist that the child puts them in the right place.

The child's work should tend to thoroughness, thoughtfulness, and helpfulness, as this tends to eradicate selfishness. The child should take pleasure in having papa's slippers ready for him by the fire, help find grandpa's spectacles, or thread grandma's needle unasked, bring wood, water, etc.; in short, to be always ready to help others. Children allowed to grow up without learning by experience the blessedness of helpfulness are deprived of one of the truest sources of happiness. Give them the care of living things, plants, animals, and a little garden of their own, and teach them patiently and thoroughly how to tend them.

As children grow older their work naturally differs, girls acquiring more skill with housewifely implements, while boys perfect themselves in the use of those belonging to the farm and the shop.

Much pains should be taken to teach the girls to sew neatly with the needle. There is danger in these days of sewing machines that children will never sew nicely by hand. Many things, like darning and other kinds of mending, can not be done on the sewing machine, therefore special pains should be taken to teach these accomplishments.

Children tire of clearing table, washing dishes, dusting the hearth and sewing carpet-rags. Trust them to dust and arrange the parlor occasionally, and especially to keep their own rooms in order. Teach them the necessity of letting in the pure, fresh air and the blessed sunshine, and in making beds after well airing, turning and smoothing the mattress, making the pillows light and billowy, putting sheets on with their right sides together, the large hem at the top, and so on through the bed-making. Then let them try their hand in the kitchen by making cakes, puddings, etc. But I hear some mother say: "I can do the work quicker myself than to be bothered with the children." Now, my dear mother, this is a mistake. It is not justice to yourself nor to the children. Direct them carefully how to make the biscuit, cake, pudding, or whatever it may be. Have patience and persevere. If the first attempts are almost failures, do not frown and say, "about as I expected," or something equally unpleasant, but rather praise the effort. Point out where the mistake was made and success will follow. A few words of praise to the boys and girls for their struggling efforts go a long way toward making the work a pleasure.

All children should be trained to the use of common tools. Girls will often find it convenient to drive a nail. How much strength women (myself among the number) have wasted opening fruit cans by trying to unscrew them first one way and then the other before we learn that all screws must turn from left to right, and if we would unscrew we must turn the opposite way. Modern housekeeping involves so much machinery, from the sewing machine to the raisin seeder, that a lady needs to be quite a machinist to keep them in order.

Men and boys often find it convenient to be able to sew on buttons or mend a torn garment, as the barbed wire fences of the present day often bring them to grief, and to be able to handle needle and scissors at such times is quite convenient.

Men have a sly way of laughing at woman's awkwardness in driving a nail. This is because they have never seen themselves as others see them while threading a needle.

Boys would find it more than convenient to be able to prepare a plain, palatable meal, or perform other household tasks; so let the boys learn these things by helping mother.

This household education should go on until our girls are fitted to do everything pertaining to the housekeeping from cellar to garret. Home-making is particularly woman's work. It has been said, "No man by himself ever made a home," but the true woman, though alone and in poverty, will somehow manage to create a home.

Some of our city schools are demonstrating the possibility and practicability of industrial training in connection with the public school; but we strongly advocate that the children of the rural districts take this training in a practical way by helping at home.

Boys tire of the routine chore-work, driving cows, feeding pigs, hoeing corn or working in the garden. Send the boy on errands to the blacksmith, the carpenter, the mill, the store, or the bank, and he will become intelligently interested in man's work. If you give him a share in the work, he will enjoy it, and save the father many tedious steps.

Queen Victoria has given us a very good example in the sensible domestic training of her children. Kaiser William also thought it necessary for his sons to know how to work.

"Life is meant for work, not for pleasure." We must have a certain amount of recreation, and the children should be taught to serve and praise the Lord in work and recreation as well as in special devotion.

EDUCATIONAL DEPARTMENT.

THE TOWNSHIP HIGH SCHOOL.

By Stratton D. Brooks, Principal Township High School, LaSalle, Ill.

It seems fitting that at this meeting of the granges of the Eleventh Congressional district, there should be an interest manifested in the township high school, for five of the thirteen township high schools established in Illinois are located in this district. It contains the first township high school established in this State—the one at Princeton—and also the last—the one at LaSalle. The people of this district have experimented with township high schools in the past, and the results have been so uniformly good that I have no doubt that in the future the people will make still further use of the law empowering them to establish such schools.

I might state as the axiom upon which to base my argument, that every boy and every girl born in America is entitled to an education. This is one of the fundamental principles of a democracy, and a democracy is, perhaps, the highest achievement of human kind. A perfect democracy—a democracy such as we hope ours to be—can be built on no other basis. Where the powers of government come directly from the people, where every man, be he rich or poor, manufacturer or mechanic, professional man or farmer, operator or miner, discusses every public question—decides for himself on national policies, and by his vote records that decision—how necessary is it that the public be well informed; how essential that each and every man be taught, and be so well taught that he will have acquired an independent habit of thinking, an ability to observe for himself, and to form correct conclusions from the observations made.

Think of the problems of the past year. In March every man was discussing the advisability of a declaration of war. In April he was criticizing the equipment and management of an army. In May he was directing the maneuvers of a navy. In July he was rejoicing over the victories of a nation. In September he was considering the details of a foreign treaty. In December he was evolving a plan of colonial government for millions of people. Such are the problems and such are the privileges of the American voter. And yet these are not the most important, for they have been foreign in their character. There are more serious questions here at home—questions more vital to personal prosperity and national welfare, which demand serious thought and careful consideration. The need for sound judgment and thorough education among such a people is apparent.

A government can not rise above the intelligence of its people and still remain a true democracy. It becomes rather an aristocracy, in which there is a governed and a governing class. When the government passes beyond the comprehension of the masses, it can no longer be a true democracy, and the opportunity for dishonest manipulation is greatly increased. It is the avoidance of this condition that renders it necessary that free and unlimited education be placed within the reach of every citizen. Surely there is no man who denies that every child should have at least the elements of an education.

The hundreds of schools and school teachers scattered every where, and the millions of dollars expended annually, testify that this is the belief of our people.

The only debatable ground is whether the child is entitled to a high school education at public expense, and whether such an education, when acquired, will be worth the time and labor necessary to attain it.

There are many worthy men, no doubt, honest in their opinions, but whose opinions are none the less detrimental to the welfare of the State, who say it is all nonsense to educate a boy beyond his station. They point with ridicule to the preacher who would perhaps be a good blacksmith, but who is a most dismal failure in the pulpit, or to the lawyer, who ought to be holding a plow, as evidence of over-education. They decry the folly of giving the farmer's boy an education beyond the three Rs, claiming that it begets a hatred of honest toil and makes him discontented with his lot.

I have little patience with these croakers. What is a boy's station and who shall determine it? Who shall say that your boy or mine must farm because you or I have farmed? What right has a city bred boy that a farmer's son has not? What privilege has the son of a millionaire that the son of a mechanic has not? Was it not the principle that all men are born free and equal, for which our forefathers fought, and shall we surrender it tamely for ourselves and for our children? Is not every boy entitled to freedom of choice in determining his station in life and equal opportunity for attaining it?

Read the names written at the top of our country's roll of honor, and will you not find that most of them have risen from the farm and the shop. Risen, did I say? No, not risen, simply changed their line of action. There is no grander life, no better one, no better class of people than those who till the soil and from nature's hand pluck that which renders life possible for the rest of us. Educate a farmer's boy beyond his station! Impossible, I say. His is the noblest station in the land; his the greatest privilege, and he must have equal opportunity with any other.

To be sure, there are many melancholly failures, and many a man who ought to farm attempts to teach, but that is no reason why all opportunity should not be given to the others. Let us not forget the blacksmiths who ought to preach or the farmers who ought to be lawyers. In our fear of over-educating a few let us not under-educate the many. A burnt crust is better than raw dough. The divine right of kings is a thing of the past. Let us not rear in its place the more pernicious theory of the divine rights of millionaires and city residents to hold the places of power and profit. In Europe there are places where a man is expected to be a farmer because his father was a farmer, or to be a baker because his father was a baker, but such a theory will not do for us, and though we do not approve of the theory we must go farther and be sure that we do not allow conditions to exist which renders such a result necessary. While it may be desirable for a farmer's son to be a farmer, yet what we must demand for each and every American child is the right of choice, the privilege of saying what he shall do, the right to determine his own course in life. The surrounding conditions must be such that this determination shall be unhampered so that he may have full freedom of choice and equal opportunity to attain to the end chosen. Freedom and equality, and though many may choose unwisely and the failures along life's pathway are numerous, yet this furnishes no reason why all opportunity should be taken from the others.

Can such a condition of choice be furnished by the course of study of a district school? Some time ago it could have been, but in the present condition of society and civilization such an education will not suffice. The world moves fast and the man who thinks that because his education was limited to a few winter terms between corn husking and corn planting therefore this will suffice, for his son does not realize that the present generation of men have had for the most part but those same opportunities, but that when his son grows up he will find that nine out of ten of his competitors will have had much more. That which was sufficient for this century will not do for the next, and he who would stand well in the race of life must start in well equipped for the struggle.

I quote a portion of an editorial from the Chicago Times-Herald.

"The country needs educated, scientific agriculturists—men who will study the laws and forces of nature and apply the results of scientific experimentation to the work of bringing the various kinds of soil to the highest degree of productiveness.

"The agriculturist of today who practices farming for profit can not move along in the ruts of the pioneers who farmed by the inflexible rules handed down from one generation to another and to whom many of the laws of nature were as sealed books.

"The new agriculture calls for men of brains and education. As the country becomes more thickly populated the demand is for more scientific husbandry. As the soil is the source of all wealth, its secrets must be revealed by experiments conducted on modern scientific lines."

I say again, a district school education will not suffice. In many countries of Europe the privileges of education and government have been kept from the people and there exists a governed and a governing class. I look upon it as one of the surest guarantees of our nation's future permanency and glory that this tendency is being so vigorously opposed everywhere. Everywhere you will find thoroughly progressive, energetic farming communities furnishing educational facilities to their children so extensive that there is little danger of the farmers of this nation ever occupying the position of the peasantry of Europe.

But, perhaps some one says that the studies of a high school course are not practical. Now, the question is, what is practical? What is it that a boy needs most in going forth to fight battles of a lifetime? Will a mind filled full of the so-called "practical facts" tumble every mountain of adversity and bridge every river of opposition? Suppose it were possible for a man to become a traveling encyclopædia of universal practicality. Would there not be something still lacking? If all this were not backed by that subtle element, good judgment, would not failure follow as nigh his footsteps as success? How far, I ask you then, does judgment go, and how much of a start will it give our boy upon the high road leading to success? Since judgment has some important bearing on life we may well ask what a high school course will do to develop this faculty beyond what may be obtained in the grades.

Judgment is a mental faculty which appears late in life; in some case, very late, indeed. The child, when leaving the eighth grade, has but reached the age when it begins to develop up to that time memory and perception have been predominant, and while judgment is not entirely lacking it has been weak. Recognizing the importance of correct judgment training, educators have for years endeavored to select such studies and to so arrange them in a high school course that all advantage of the observation powers and the memory may be obtained and that which the whole is closely articulated with the practical affairs of life, yet the finished product is a boy or girl having a well trained judgment. A single example will suffice. Our science course begins with physiology. Here the boy is taught to observe carefully and record accurately what he sees. His hand and eyes are trained. His habit of truthfulness is developed. From the dissection of animals he learns how he, himself, is made. He is taught the practical lessons of digestion, respiration, the laws of health, and from what he has seen and remembered he is taught to reason about what can not be seen. From physiology he passes to physical geography. He studies the world as a whole, the laws of wind currents, the causes of storms, the kinds of soils, and how they are made, and from the operations of nature carried on around him, he is led to reason out what must have happened to produce visible results. In zoology he studies the formation, use and distribution of animals. In botany the forms and determination of plants and weeds, methods of cultivation and destruction, distribution and uses. In physics he studies and practically applies the laws of mechanics. The pump, the press, the lever, the inclined plane, the wheel and axle—many things directly practical. But the problems of physics demand far greater strength of reason and judgment than did those in physiology or botany. And then again. In chemistry he is led to speculate

on the very atoms composing matter. He learns about the great necessities of life from the rising of a loaf of bread to the smelting of the ore of iron or copper, from the component parts of fertile soil to the manufacture of patent fertilizers.

From this brief sketch of the science course it is evident that while it is designed to be disciplinary, and to present those things which will train judgment, it has nevertheless a direct and vital connection with the practical things of actual life. Many of these things may be pounded out on the anvil of experience, but with what better results will that process be accompanied if it has the backing of four years training, such as I have described. Especially when you remember that the science is but one fourth of the course and that language, history and mathematics have each added to result.

What is the meaning of this term practical? To me it includes two things. The direct and the indirect. As applied to education the directly practical includes those facts and processes which may be transferred directly from the school room to the actual business of life, the indirectly practical, and to my mind the more important part of an education, includes those things which do not find this direct application. The object of an education is to fit our boys and girls for a higher and better life. Does a high school course accomplish anything towards the attainment of that result? Is a knowledge of science of history, of literature, of mathematics, of any avail in making our boys and girls into better, grander, nobler men and women? Will not all these things elevate the sphere of their existence and broaden the field of their capabilities? Will not every hour spent in the pursuit of knowledge return a tenfold profit? Will not the consciousness of power thus acquired bring man more pay than all the gold he might have earned? If buying hogs and cattle, corn and coal was all there was in life we would have little use for ought beyond the directly practical, but life is more than this. I would not be bound down to such a life, nor would I wish my fellow man to be, and he who will do nothing else, and that of necessity means most of us, must at least know something else, lest his life become a mere physical existence, not better than that of the cattle he has bought and sold. If life is more than mere physical existence. If it is more than buying and selling and toiling and planning. If mind and heart and soul have ought to do with life, then do not all these indirectly practical things have a most intense and direct application to the real life of every man?

In all the vast social pyramid whose base lies on the foul and reeking allies of our city streams, and whose summit is crowned, not by the wealthy, because of their wealth, but by that product of American civilization, honest industrious, American citizens, even every step which separates the lowest from the low, and the low from the next higher and on every stone you will find the label "brains." If intellect and thought are all that raise a man above a fellow man, then he who will do the most and live the best can not be content with an eighth grade education.

If a high school education is necessary what is the most feasible and economical way to obtain it? In compiling some statistics for use in persuading the legislature of the necessity of a second normal school in Michigan I was forcibly impressed with the influence of proximity upon attendance. Nearness is the necessary and essential element. The schools must be taken to the people, not the people to the schools. This can be most readily accomplished by the establishment of township high schools.

But the question is, how much will it cost? In this district the township high schools are elaborate affairs. In Streator, Ottawa, LaSalle, Pontiac and Princeton there are large buildings, thoroughly equipped, well heated, lighted and ventilated. A large corps of competent instructors are in charge and the work in many lines rivals that in the smaller colleges. With such examples before us we may have thought that a township high school demanded a city with some thousands of population and an expenditure of money far beyond the resources of a rural township. But such is not necessarily the case. There are township high schools which have but two teachers, and one can readily conceive of a school presided over by one real live

teacher in one room wherein were assembled a score of farmers' girls and boys. Such a school is surely not beyond the reach of the poorest townships. Its expense would not be much in excess of that of any one single district and yet the taxes would be spread over many districts.

While the township high schools have been established mainly in cities it is not here that their main usefulness lies. While the township high school is usually better than the city school which it supplants, yet the best field for the township school is in the smaller towns and villages and those townships where there are no towns or villages, where limited taxing ability limits the efficiency of the school. Here the establishment of a township high school would render possible better equipment, better buildings, and what is more important, better teachers, while the additional expense would be spread over such a wide area as to pass almost unnoticed.

But how shall it be done? The legal conditions are few and single.

"Upon petition of not less than fifty voters of any school township, filed with the township treasurer at least fifteen days preceding the regular election of trustees, it shall be the duty of said treasurer to notify the voters of said township that an election 'for' or 'against' a township high school will be held at the said next regular election of trustees by posting notices of such election in at least ten of the most public places throughout such township for at least ten days before the election. If a majority of the votes at such election shall be found to be in favor of establishing a township high school it shall be the duty of the trustees of the township to call a special election on any Saturday within sixty days from the time of the election establishing the township high school, for the purpose of electing a township board of education to consist of five members, notice of which election shall be given for the same time and in the same manner as provided for in the election of township trustees."

"It shall be the duty of the township board of education to establish at some central point most convenient to a majority of the pupils of the township a high school for the education of the more advanced pupils."

By a recent decision of the courts it is necessary to have a vote of the people in order to select a site and levy taxes for its purchase and for building purposes.

In addition to the legal conditions there are other necessary local conditions. There must be a general sentiment in favor of education throughout the township, an appreciation of the fundamental necessity in the development of a democratic government in which there shall be no Americans of the second class ruled by Americans of the first class. There must be a township in which there are no factional interests, no pull and haul for advantage or though there may be factional interests there must be men enough wise enough to subordinate private advantage to public good. There must be a community in which there is an understanding of our duty in preparing our children for the fullest and best enjoyment of life, and for the most useful and progressive citizenship. And, besides all these, there is still a great need before a township high school can be started. There must be a few public-spirited men who are willing to make themselves thoroughly familiar with the matter in hand; men who have push and energy, who will endeavor to educate the croakers and to overcome the opposition of those who can not be educated; men who are willing to be rewarded for public effort by rebuff and censure, resting content in the feeling that "he is our friend who makes us do our best." In the hands of such men the preliminary labor and difficulties in establishing a township high school will soon be overcome and the school once established will so prove its advantages that it will be the pride and glory of all the thoughtful worthy men and women in the township.

But, what are these advantages? I have dwelt to some length upon the necessities and advantages of a high school course, so it remains to state but those advantages which would attach to a strictly rural township high school.

First, it is economical; it costs less to educate boys and girls at home than it does to send them away.

The expense for board and tuition for six students would pay the salary of a teacher who could teach twenty. I am confident that there are many townships whose residents pay more, twice over each year, in sending people away to school than would suffice to run a school of their own. If the school was established at home these men would pay much less while many others would pay but little now, and while they are some yet, the men are few in the country who will grudge a reasonable school tax though they have no children of their own.

Second.—The element of nearness will render it possible for many to attend who would otherwise be debarred. The conditions of roads and weather often prevent a drive of ten or fifteen miles to some neighboring city. A school at home will bring to every boy and every girl that chance of an education which should be theirs. Instead of five or six whose fathers can afford to pay board and tuition, there will be thirty or forty from those homes which could not afford this extra expense. This it seems to me is the one unanswerable argument in favor of a township school. It breaks down the barrier between rich and poor and brings to all alike equal opportunity. This is an essential condition for the perpetuity of our form of government.

Third.—A school so established could be adjusted to fit local conditions. If built in the country a house of the principal might properly be added. There should be sheds for horses and a room for bicycles. The course could be made to conform to the needs of the community. If many of the boys could attend only from December to April 1st studies could be arranged to begin and end at those times, and so the school could be made in every way to conform to the needs of the patrons.

Fourth.—It would offer to the farmer's son an opportunity of equal advantage without attaching to it the dangers of a city residence. Many parents hesitate, and with reason, to trust a boy of fourteen or fifteen to the temptations liable to meet him in the city. Many a promising lad has acquired habits during his attendance at a city school which have brought grief to his parents and ruin to himself.

Fifth.—A township high school should stand in the same relation to the district schools that the university does to the high schools. It will furnish something to which to look forward. It will improve the work and increase the attendance in the common schools, and in this one thing alone will repay amply for all expense.

Sixth.—It could be made, and in the hands of a competent man would be made, the educational center of the township. Here would be held the lyceum, the debating clubs, the Farmers' Institute. Here could be established the township library and the township lecture course, and from it would go forth all those refining, educating, ennobling tendencies which will help us bear the difficulties in our path and live well our lives as citizens of this grand republic.

If then, we are agreed that every child has a fundamental right to an education; if the present conditions of society and civilization are such that a grade education will not suffice; if every boy has a right to choose his vocation in life; if a high school education is necessary in order to have this choice unhampered; if, in order to furnish this education the schools must be brought to the people, and if by means of a township high school it can be so brought at a reasonable cost, who then, would dare oppose the establishment of such a school? I hope to see the time when township schools will be scattered everywhere, and when every farmers' boy and every farmers' girl will have the advantages they afford.

THE VALUE OF AN EDUCATED CHRISTIAN WOMANHOOD.

By Rev. Wm. P. McKee, Dean, Frances Shimer Academy of the University of Chicago, Mt. Carroll, Ill.

What justification have we for discussing a subject of this kind?

At first thought it would seem as though we might as well ask whether there is value in fresh air or sunshine—whether there is value in gold mines or in corner lots or in virtue itself.

Why is an educated christian womanhood valuable? For every reason in the world, would seem to be the instant and inevitable reply.

The fact is, however, that there is need for the discussion of such a question. And this is true for a double reason. Christian education itself is not appreciated as widely as it ought to be.

And in some quarters where it is held in high esteem for men it is not much thought of for women.

We have quit asking whether women are equal to men in capacity to receive education.

We have also quit saying that they are particularly in need of education.

They are equally capable not less, and equally needy not more.

But we have not got beyond the time when in many, many quarters parents will make every sacrifice to send the boy to college, and little or none to send the girl.

Nor can we fail to observe that through a large section of the civilized world women must face shut doors in college, university and professional schools.

The world wants much of being ready to quit talking about the value of an educated christian womanhood.

1. This topic raises the general question of the value of education to anybody.

2. Education means discipline. An educated man wastes his energies because he does not know how to use his power.

3. Education gives ability to things in true proportion. An educated person will see large things large and small things small, and will not confuse the two.

4. Education gives breadth to life; it enlarges the sympathies and sweetens the temper. Judgments are apt to be given in greater charity. Ignorance and severity are more apt to go hand in hand.

5. Education that is christian furnishes higher purposes and ideals. There are many things for which people strive which are unworthy. In some cases the great thing is knowledge, in other things it is pleasure or display. There have been lives whose chief purpose seemed to be revenge. Now, an intelligent christianity sets before the individual service in the name of God and for the sake of his fellows as the main purpose of life. This gives meaning and dignity to life itself.

Whatever of force there is in any of these statements applies to womanhood as well as to manhood. It is just as important that a woman should have discipline and a sense of proportion and breadth of view and worthy aims as it is that a man should; and if all these things, which go to make a christian manhood, have value, as we universally admit that they do, in like manner they will have value when they enter into the composition of educated christian womanhood.

In particular an educated christian woman gets far more out of life for herself than she would if she were neither educated nor christian.

1. Education and religion have everything to do with relieving life from the burden of loneliness. An ignorant woman is apt to mope when left alone. An intelligent one can always have high company. She has fellowship with

great souls through magazines and books and pictures. She may be entirely alone and yet not be alone. She has resources in herself. She is interested and she is interesting.

2. Such a woman is always better able to get something out of life when she has little opportunity for action. Inaction to some is a source of peril, mentally and morally. An intelligent christian woman may get good and do good in circumstances which make action almost impossible.

This consideration has special pertinence, because women, in the nature of the case, are shut in more than men are. They have less freedom of movement and larger leisure generally speaking. Now a woman who considers herself alone, if such a thing were possible, can get more out of life when hemmed in if she has christianity and education. Her knowledge goes far to help her grow when she is quiet, and to participate in life, although shut away from it.

3. The educated christian woman can get more out of life in the narrowness of poverty than any other woman can. She appreciates better what she has. There is a certain wealth of resource within her own soul which can not be taken away from her. She can make more out of a little. If she is weighted with the common round of daily toil, she can connect duty with drudgery and make even drudgery blessed.

Intelligence will help her to use her time to better advantage, so that she will not be a slave to her work, Piety will help her to see a religious meaning in the most ordinary task and she will thus be able to perform it more cheerfully.

In other words if it were possible to consider a woman as absolutely separated and alone, it still remains true that considering herself only, womanhood in her is richer and happier than it is educated and christian.

III. An educated christian womanhood is more likely to be independent than one that is neither educated nor christian.

1. Some would say that this is an argument against education and christianity. They dislike independence in women. The very word has a disagreeable sound to them. Independent women to them are masculine women. They seem to feel that dependence is essential to the charm which belongs to the ideal woman. The favorite figure of such would be the sturdy oak and the twining ivy as representing the true and proper relation between the man and the woman. According to this idea the man must have strength and independence. The woman should be satisfied with beauty, grace and dependence. Independence in a woman means necessarily isolation and lordly ways and pride if not coarseness.

There are women unquestionably who have made independence offensive in their own persons. We are constrained to think, however, that they have abused independence; have not used it.

2. As a matter of fact, independence develops self respect in women as well as in men. In the long run the woman gains, when she is able to be her own provider if necessary.

3. There is a close relation between the financial independence of women and self respect and good morals.

Undoubtedly many women go wrong out of sheer vanity and pride and a desire for self indulgence. Independence for them would only mean a greater facility to do evil. But on the other hand a vastly greater number go wrong because of the dependent condition into which they have been put. It is poverty which drives them to do that which they do not wish to do. In other words as women become independent they become impervious to the worst kinds of temptations. When they meet such allurements they simply have no power over them.

It may be true that all evil comes out of the heart. We must admit, however, the influence of bad surroundings or of good surroundings as the case may be. Conduct seems to be controlled in part by outward conditions as certainly by inward passions and inclinations and affections.

It is an axiom in the schools that the educated woman can make a living in a worthy way when she gets through school. If she is not only educated but christian so that she knows something of self-denial and earnestness of purpose, it is a rare case in which she is not free to pursue a worthy sort of life. It would be difficult to over-estimate the importance of education in delivering women from the hateful necessity of surrendering their lives to unworthy men for the sake of support and putting themselves into false positions. It is a sort of slavery which is all the more pitiful because of the degree of intelligence and refinement of those who have been subjected to it.

IV. The value of an educated christian womanhood appears at its best in the home.

1. For the great majority the ideal woman will be in the home.

There is a specific work which unmarried women seem particularly called to do as nurses, missionaries and teachers chiefly. It may be that an increasing number will be called to these lines of service. It is possible that an increasing proportion of college women will be among the number, whose work will lie outside the home. It will be a work which demands education and christianity; a work thoroughly worthy and necessary; but the great majority of women must continue to be wives and mothers as of old. Here a woman finds a position of undisputed value and authority; here she reaches equilibrium easily and naturally; here her powers work spontaneously, freely, effectively. The home is and will continue to be the woman's throne.

2. The home will continue to be the strongest influence in the life of a people, a nation. The individual who controls the home will in the long run control the life of a nation.

The church is vast and persuasive but it is dreadfully hampered and is almost helpless when the home is against it. The school touches the whole community in its most sensitive spot, viz. the children, and the school seems to be all powerful; but even the school lives at a poor, dying rate when the home is indifferent or antagonistic.

The men who appear in politics, education, the ministry, or in the army or navy, are deeply marked with the grade of home they come from. If tenderness and truth and unselfishness and refinement and courage and earnestness are bred into the bone at home, they become a part of the person and can scarcely be destroyed.

3. Now, the home is without any question just about what the woman makes it. A man can not make a home, though he may, of course, destroy one. If the woman is selfish and ignorant a regiment of angels can not rescue her home from slovenliness and dullness. She can keep out fresh air and sunshine and sweetness and light against any and all comers. She can drive her husband to the dram shop and her children into the streets and into depravity.

The home, I say, is the spot in which educated, christian womanhood can rule for good with undisputed authority. Such a woman can make the home itself to be a school of manners, of good taste and earnestness and piety. It may be that the home is the greatest of all schools, so far as the development of character is concerned. It will remain impossible for the majority of our boys and girls to get a college education. The educated, christian mother can compensate for this loss largely by filling the home life with imagination and holy living.

The educated, christian woman will, in her home, be able to increase the number of the young people who will desire to seek wider fields of instruction and usefulness. It is the mother who believes in the college who will somehow or other send her children to college. She will inform them about the college; she will urge upon them the value of the college; she will herself have in the home an atmosphere of refinement and culture; she will herself be willing to make the sacrifices which are necessary in order to allow the child to go to college. The attitude of the mother will determine the matter whether the child will go to school, as she will also determine whether the child shall be happy in to the home and be uplifted and inspired in it.

To conclude:

1. It is well to keep in mind that no such thing is possible as what some have called the complete emancipation of woman.

Certain bonds are essential to the existence of society. Some of these bonds pertain particularly to men. They can not be emancipated from the obligation of earning bread for the household. It might not be a good thing for them to be freed from this obligation if they could be. It is certain that they can not be.

When the necessity for bread winning is not present, there remains a moral obligation to society. A man of great vigor and ability owes it to society to engage actively in business and professional life.

In the same sense women are under bonds to the home, and family in particular. Elizabeth Bisland has put it into the terse phrase, "woman is in bondage to the coming generation."

It is certain that the educated, christian womanhood of the future will have larger liberty than the average woman has had in the past, but it will not do to say that this liberty can be complete, and there is no word strong enough to express the obligations under which she will continue to rest, except the word bondage. In a sense a sort of obligation must remain which can only be described in this way.

2. The last word is that it is a fatal mistake to separate christianity and education whether in woman or in man. Christianity without education means christianity of an emotional sort as a rule. The ignorant christian is apt to be unsteady and impulsive and fearful. In many cases christianity without education means bitterness and narrowness, if not cruelty. The type of religion which has prevailed in some centuries in the past, which is a disgrace to the name of christianity, has been a type that can not be called educated. Christianity without education is an enormous force without guidance. It may be good; it is capable of perversion and real damage.

On the other hand, education without christianity is even worse. Such an education is apt to be hard and cold and proud. Sometimes it is just an intolerant and narrow and bigoted as an ignorant christian is. Between the ignorant christian and the unchristian man of culture, it were better even to choose, if we had to, the christianity without education. No narrowness is narrower than that of the man who refuses to admit the presence of God in the world and in his own soul.

Moreover an education that is without christianity is apt to be utterly selfish and in the long run is deficient in aspiration.

Christianity and education are made for one another and supplement one another. Jesus called himself the truth. He declared that true freedom could come by the truth. Neither of these two is perfect if left alone. No great advance in knowledge and usefulness has ever taken place that has not had upon it the blessing and approval of the Son of man.

THE FARMER'S DUTY TO A COMMUNITY.

By Curtis Wright, of Varna.

The first duty of the farmer is to strive to be the best citizen in his community, to better the condition of his family, and so live that he commands the respect of those around him. He should be a fearless exponent of all things tending to build up the moral and educational institutions of his neighborhood, respect the law, and the opinions of others. Begin in the school district, watch the administration of his township, encourage good service, and denounce extravagance; be public spirited, and as liberal as his circumstances will permit; be charitable, but do not let imposters impose upon you. neither personally or as a public servant.

Every comfort, convenience and betterment environing the farmer's home makes the neighborhood more attractive, increases the value of property, causes others to follow the good example, tending to keep the young contented and willing to stay on the farm. Do not let the farm run down. If you must go to town to retire, don't forsake the best friend you ever had; this is both wicked and ungrateful. Too much of this is in evidence, as a ride in the country will convince you that the poorest kept farms are generally those of retired farmers living in town. No wonder the boys are anxious to join the throng that are piteously pleading at the feet of the city millionaire for employment, rather than tackle the restoring of a run down farm.

Many farmers see no beauty on the farm. It's only good for what money it brings in. Their lives are an eager, nerve-eating struggle to accumulate enough to live on in town. How much more beautiful the country would be if farmers would retire on their farms. The same money expended for comforts and luxuries on the farm would certainly bring the ease of the city. Many city business men are looking forward to the time when they can retire to a nice farm.

A short time ago I had a conversation with a friend engaged in the real estate business. He had just returned from Chicago, where he had been negotiating with a merchant wanting a farm on the west side of the river in Marshall county, on which to retire. How strangely this sounded to me. For the benefit of my young farmer friends, I want to relate more of this conversation. In the morning of the day on which my friend called on the merchant, the merchant had advertised for a lady clerk. Their business conversation was being interrupted by those seeking the position; 35 had applied. He finally employed a bright, well educated lady that he personally knew for \$4 a week. Some had offered their services for their board. Think of this when you get a little discouraged.

The farmers are the greatest in number and employed in the greatest industry in the country. We furnish three-fourths of all our exports, constantly producing new wealth for the business world; and it is our duty to ourselves and children to see that we get just remuneration for our labor. If laws are made that are to our disadvantage, we should have them repealed; if law is needed, have it enacted. We have the votes to accomplish much if united. Others unite and get representation. We scatter, and get left: others nominate, we elect; they petition and get what they ask; we ask for nothing and get it.

If the banker wants a better bankrupt law, he gets the farmer and merchant to sign his petition. Great combinations form trusts, then ask for legislation that will protect them against all competition, compelling the consumer of their product to pay their price, while we farmers are trusting to luck and hoping that they will look after our interests, and not take advantage of our weakness.

We should have more representation in our legislatures, on boards of equalization and in our national congress. In the lower house of the 53d, with 346 members, 245 were lawyers, 14 bankers, 21 manufacturers or merchants, 5 doctors, 25 farmers, 8 editors, and 28 miscellaneous. What representation can a farmer expect from a lawyer? The lawyer's business is to get a farmer into trouble, that he may help him out for pay. The doctors—with all respect for the profession—it would be to their financial interest to get half the farmers down with the rheumatism.

We are paying more than our share of the taxes, corporations and great wealth are not. A few years ago the assessment of Cook county showed that the agricultural implements were worth more than the money in the banks, and all the stocks and bonds. The assessors found \$7,000 worth of diamonds in the county. Judging from the assessment they must have been found on the bibs of the farmers' overalls.

I may be going beyond my license by touching on subjects beyond my immediate community. Our government is but an aggregation of communities. I know you are hoping that I will not use all the rope that this gives me. If

I can draw out interesting discussion on some of my rambling thoughts, I think you will pardon me. I want to speak of something that I think would be of benefit to us.

I believe the farmers should favor a postal savings banking law, and petition our lawyer representatives to enact one, where the farmers and other small depositors could safely deposit their savings and get a little interest. The security being the government itself, would bring out the small hoardings of the people, while the present system does not, putting the money of the country practically all in circulation, encouraging thrift and economy, obviating the often necessity of the government selling bonds to run long periods, taxing the people, while the money thus invested escapes, and taking away some of the power that now exists to contract, for a time, the money of the country in order to force bond issues and other legislation in favor of those interested. This could be brought about and carried on with but little additional expense.

We also should have the right to vote on all questions that affect us in the townships at least. Towns and villages are disfranchising farmers that reside just outside the bounds of their corporate limits. They are allowed to pass laws that affect the farmer almost as much as themselves, yet he is not represented or counseled. If this injustice was corrected we would have fewer saloons and billiard halls in our small towns.

But in my opinion our needs for new legislation is insignificant when compared to the need of repealing bad legislation and customs now in force. We want more men that know how, have the courage and honesty to vote No, than those that can draft bills. Our law-makers are making too many laws. It takes very little law to govern a farmer. The New York legislature at each session passes from 600 to 800 laws. Does anyone imagine that all these new laws are necessary for good government?

We have good laws that are not enforced. We have a law against gambling, yet we have in this State the greatest gambling institution on earth. Option dealing on the Board of Trade is injuring our people both financially and morally. It is more dangerous and beguiling because it is carried on in the same building and intermingled with legitimate business, claiming respectability from this fact. But the same transactions carried on outside the regular Board of Trade building is called gambling by these greater gamblers themselves and they are calling the law to aid them in suppressing what they call "bucket shops." The larger gamblers call themselves "traders." Our Boards of Trade, instead of being in fact (what the name implies) places where the buyer and seller meet to make the exchanges of property and products, are degenerating into meeting places where men bet on the future price of products. Our prices are gauged as much, if not more, by these bets than by the law of supply and demand, depressing the markets while in the hands of producers; then, by combinations and corners, raise the price so high that consumers can not buy, holding back products from foreign markets, who supply themselves from other countries competing with us, all to finally come in a deluge on an already supplied market. They argue that the business is so great that it could be done in no other way. We cite them to one of the largest markets in the world, the Union Stock Yards, where the buyer and seller, through their brokers, meet every business day, and the exchanges are made in a few hours.

The moral side of this evil is even worse than the financial. The school boys are looking for money enough to margin 10,000 bushels of May wheat, or 25,000 bushels of September corn. Soon the ministers of the gospel will be taking flyers in mess pork, and the Ladies' Aid Societies running corners in July oats. The Mexican loves his national sport. We are growing into a nation of gamblers.

Farmers must not be afraid of being called radical. All reformers were once so called. A radical is a person with an opinion and the courage to express it. Farmers as a class, lack assurance. We should protest more. There are generally enough and to spare of petitions. Our rulers and law-makers should be made to realize the magnitude of agriculture. One of our

recent ex-presidents, when in office, visited the stock yards in Chicago. When viewing that busy scene, in wonderment he said he did not know that such a business was carried on in the west. He knew more about stocks, bonds and sporting goods than he did about agriculture.

The men who have best served the people when in office have either been brought up on the farm or had a good knowledge of its importance. The lessons taught on the farm and in our free schools are discernible in the thoughtful and painstaking statesman. The country's hope for advancement is in our rural population. The farmer is a mighty factor in our affairs, and his influence, so far as his knowledge carries him is generally for good. He is found in the front ranks of all forward movements. Our school of political economy this winter will be the debates in congress. Many of the best thinkers of the world believe that we are now approaching a crisis in our government, calling our attention to Grecian and Roman history, showing that civilization can go backward, and unjust governments decay. We should be careful of a change that will entangle us in the questions that are now causing other nations to maintain, by burdensome taxation, large standing armies that they may insure peace.

We are living under the best and most liberal government on earth. While boasting of our advancement, we must not forget our great responsibilities; to maintain and perfect it is our solemn duty. Majorities are not always right. Party prejudice and the selfishness of classes confuse the people, and bad legislation creeps in. Education is the remedy and preservative. We are under bonds to transmit what we have inherited improved. Ignorance and selfishness means forfeiture and disgrace. No good citizen can be content, but must be active and aggressive as long as an unjust law is in effect or good legislation is needed.

In the language of John Morley: "When our names are blotted out, and our place knows us no more, the energy of each social service will remain; and so, too, let us not forget, will each social disservice remain, like the unending stream of one of nature's forces."

RELATION OF THE FARMER TO THE CITY.

By George N. Parker, Robinson, Ill.

The subject assigned me for the evening, is certainly an interesting one for both those who live on the farm as well as those who may reside in the city. On the part of some there has, seemingly, been an idea prevalent that the relation was not pleasant—that there was antagonism—and conflict of interest, etc. This arises from two causes, the principal one being the want of understanding the relation of the one to the other. The other is prejudice, which is the result of ignorance of the true relation of the one to the other. The up-to-date farmer, as well as the merchant, who makes a success of his business, are excellent friends, and are on the best of terms, for they realize that there is no conflict of interest between them, and that when their true relation is understood, they have nothing but the best of feeling. The one is dependent upon the other—their interests do not conflict, but are mutual. If the farmer prospers, the merchant, mechanic and professional man prospers. If the farmer fails, all fail because the real wealth of the country comes from the earth. The mineral, vegetable and animal kingdoms are all the product of the earth. They come from the ground and man then takes charge and utilizes them.

The merchant is as much interested in good prices for the farm products as the man who raises them, for if the farmer does not get adequate prices for the product of his toil, and is forced to sell at less than it costs to produce them, he can not purchase from the merchant for the want of money, and as a result, the retail merchant does not purchase from the wholesale merchant, nor he from the jobber. The jobber can not purchase from the manufacturer, and consequently, the factories are closed down and the laborers of the

country thrown out of employment, and ruin is the result of low prices to the farmer. So, you see, all depends upon the farmer. If the farmer is not prosperous, then no real prosperity can be possible. You may have spasmodic prosperity, caused by abnormal conditions, but you can not have real prosperity in this country on falling prices. Prosperity may come to one whose interest has been built up by class legislation at the expense of other interests. No, so long as it costs more to produce anything than you can sell it for, the farmer can not prosper. The great trouble with the condition of affairs is that men who have money will not invest it on falling prices. If prices were going up, then capitalists would invest their money. Money would come out of its hiding places and seek investment.

You go with me to the money centers, and, you will find there millions of idle capital. Why? Because they will not invest it on falling prices. They make more under existing circumstances by leaving their money in the vaults of the bank than they can by investment under falling prices, for the reason that the property they purchase today, under falling prices, would be a losing investment, hence they prefer idle capital to losing investments. It is a fact that with \$60,000 placed in the bank 30 years ago, with \$1,000 taken from it each year you can purchase more of the product of human toil with the \$30,000 left than you could with it all thirty years ago.

But my countrymen, there is a cause for this, but this is not the time or place to suggest the remedy. The remedy is in the hands of the people, however, and they are untrue to themselves, if they do not avail themselves of it, when the opportunity presents itself.

There is a mistaken idea, on the part of some, that the residents of the city feel themselves better than the farmer; this is not true. The true representatives of the city recognize in the farmer their equal in all that goes to make the man. They are engaged in different vocations but have mutual interests. When you hear a party who resides in the city speak disparagingly of the farmer, that party is not a representative of anything. He hasn't brains enough to represent himself even. He is some little fellow who, if married, has to be kept by his mother-in-law. No, the true representative of your city is always glad to meet the farmer and talk over matters with him, exchange views with him, talk of the farmer's prospects—ask about his prospective crops—for the merchant is equally interested with him. The merchant knows that if the crop is short, bills for the coming year will be short in proportion and therefore the merchant is interested in his success. If the farmer chances to meet a true representative of the mechanic, they will also interchange ideas, because the mechanic will know that if the farmer is not prosperous, he will not purchase that new surrey that he was contemplating, and that he will do with last year's cultivator, and will patch up the old harness, and that addition to the new house or barn will not go up—so he makes inquiry as to the crop prospect for he, also, is interested.

If a drouth comes and cuts the pasture short, the milk fails and the butter is scarce and the local demand great, and prices run higher. Who sees that sooner than the wife of the mechanic that is out of work, owing to the failure of the farmer to receive adequate prices for the proceeds of his toil.

If the cholera comes along and thus cuts the hogs short, and prices should rise by reason thereof, who will see that sooner than the mechanic who makes his living by the sweat of his brow. Let a "cold snap" come along and the egg "crop" be cut short and who sees sooner than the man who lives in the city. Will it be said that the people who live in the city are not interested in the welfare of those who reside on the farm?

How often do you hear your friend in the city say, "Well, I am going out to spend Sunday with John Smith in the country and get something to eat." Think of what good meals you do get when you go out to visit a friend in the country.

I was raised on a farm and lived there till I was twenty-two years old, and I know the likes and dislikes of the farmer. He, as a rule, is an honest, industrious man. He attends to his own business and don't meddle with others. He is not envious; he strives to keep along with the procession; he

is an intelligent man in his vocation. He can't come to town and take up the mercantile business, he would make a failure. Why? Because he has not been educated in that line; but, do you think you could any more make a success of farming than he of merchandising? He would not understand your business, neither would you his. Why, if you should undertake to lay off a corn-row, or plow a row of corn or do anything on a farm, you would make a failure. Why? For the same reason that the farmer makes a failure as a merchant—you have not been educated to it. The farmer has as much intelligence as the man who lives in town. The difference is in the training. Some of the most brilliant men who ever graced public positions are the men who were reared on the farm. The habits of the farmer are very different from those of the resident of the city. The farmer retires early in the evening, while the resident of the city lingers at his place of business late. The farmer rises early. I have the habit of the farmer because I was raised there, and my habit became fixed. I had written nearly ten pages of this address last Thursday morning when the town clock had struck five. A great many of our acts are the result of habit, while others are the result of surroundings and education, which comes from opportunity. Many of the farmers have not had the benefit of an education in the schools—their education comes from experience. Many can not make extensive calculations—yet, as they say, they make them “in their heads” and can give you nearly the correct amount. If a farmer keeps an account in his head, he remembers how many sacks or how many loads he has handled, and hence you will find that he can approximate it closely. Oh, but one will say, you can not trust the farmer. John Doe brought his wool in the other day and he had a large rock tied up in a fleece of wool. Well, are the farmers to be condemned for this any more than the merchants are for the short yard stick or light weights of a man who calls himself a merchant? It is not honesty or dishonesty of the business, it is the man himself and not the business that makes the rascal.

The farmers as a class are honest, high-minded gentlemen, and I only know of one line of business that outranks them, and it is needless to say, before this intelligent audience, that it is the lawyer.

Now, when I wrote that I knew you would laugh. But let me ask you candidly, is it not true with the many opportunities they have and with the temptation they are beset with, but very few go wrong, and no class of people condemn a dishonest act more than the attorney. If an attorney is an embezzler, his authority to do business is taken from him. In other words his license is revoked and he goes out of business. Did you ever hear of a farmer or merchant going out of business because he was dishonest? Again, you, who employ attorneys, are responsible for many of the disreputable acts of the attorney. You will say, “Well, I will employ so and so and he will take all advantages, etc.” They forget that the legal profession is an honorable one, and that the law is the golden chain which binds the universe to the throne of God.

Yes, men of all classes and profession should be honest. The Dutchman said “Honesty is the best policy,” but it made a man “tam poor.” The German was wrong; he thought he had been practicing honesty, but if he had, he would not have been so poor. A man can not afford to be dishonest. You may seemingly prosper in one act, but it will be the means of distrust, and with distrust comes suspicion and with it comes failure.

The farmer and business man want to understand each other better. They want to meet together. The merchant should attend the farmers' institutes, mix with the farmers, take an interest in them, and treat them well. It costs nothing to treat a man civilly. I care not what may be his business, if it should be legitimate. A man should never forget to be a gentleman upon all occasions.

A merchant who is narrow-minded and don't understand the relation he sustains to the farmer, will say, “What business have I over there with those hay-seeds?” Should he chance to come over to see how we are dressed and see the old styles of the girls that he may make remarks about them, if he has brains enough to understand anything he will find that in these farmers'

institutes we are engaged in something of importance, something to promote the calling of the farmer, something that will help him and everybody else. He will find that we are laboring for the betterment of the condition of the human family. If he has a mind, it will be changed, and he will become our friend instead of our critic. He will find the country girls dress with the times and are tidy and intelligent.

Yes, the great trouble with so many is that they do not understand one another. They misconstrue our motives. The business man, the mechanic and the professional man should attend farmers' meetings. One will say, "If I go over there we will find some lawyer or doctor talking—and what do they know about farming?" Come over and see and, as a rule, I will guarantee you will learn something. It makes no difference if it should be a doctor or a lawyer that may be talking, you will learn something that will be profitable to you.

Many doctors and even lawyers are excellent farmers and can give you many good ideas along agricultural and horticultural lines. If I pass a farm I can tell at a glance if a farmer lives there. If I find his wood-pile in the front yard, his barn doors all off the hinges, his farming machinery out in the weather, his stock without shelter, and his wife on the wood-pile chopping the wood, I have no difficulty in saying, "Well, that fellow is no farmer."

Farmers want to beautify their homes. Plant fruit trees, shrubbery and flowers, as well as corn, wheat, etc. Make your homes attractive to your children; educate your boys and girls; make them intelligent men and women. Teach them that the future of the state rests with them—that they must soon be called upon to discharge the duties incidental to manhood and womanhood; that they soon are to be the fathers and mothers who will be responsible for raising families, and that, therefore, much depends on them. Have them govern their tempers, leave off bad habits, learn to do right and refrain from doing wrong.

Farmers, don't you suppose that if a merchant should chance to pass your house, that if everything was out of "fix," they could see it? When you come to the city and go into a store and find the goods in disorder, as if they had been thrown into the building with a pitch fork, you see it at once, and if you should go into a store and find everything nicely packed away, you see it. It don't take a merchant to detect this, neither does it take a farmer to see when you are a negligent farmer. Therefore, we can learn from one another.

It is said a wise man can learn from a child. Therefore men of all vocations in life should attend the farmers' institutes, take an interest in them, encourage them, urge everybody to attend them and thereby make them a success.

Farmers of the 19th Congressional District meet in your county institutes. Talk over farm questions with one another. Plant fruit trees, flowers, etc., clear up the waste lands, beautify your homes, make life a success. Help build up society. Do your part in this great battle of life, and let it not be said of you that life was a failure, and that the world was no better for your having been in it. A great responsibility rest with us. The great Architect of the universe has created us with intellect, and we are untrue to our kind if we fail to develop it.

Therefore, let us all do our duty, do something for the elevation of man, and when we have discharged our duty as a citizen of this great country, with its possibilities, then, and not till then, can we hope for the good opinion of our countrymen.

THE FARM AND THE SCHOOL.

By Charles W. Farr, Chicago, Ill.

Mr. President, Ladies and Gentlemen:

That you may be able to follow me easily I want to call your attention at the outset to these charts which form an outline of my talk before you today.

CHART NO. I.—THE FARM.

Talk about the farm, pastures, grain fields, woods, soil, plants, animals.
Draw farms, school district, township, county, State, etc.
Plants must have soil, heat, light, moisture, work.

CHART NO. II.—THE SOIL.

Pebbles, sand, soil.
Composition—Rock, animal and vegetable matter.
Kinds—Sandy, clayey, peaty.
Drainage, fertilization, cultivation, roots of plants—Mix soil and fertilizer, kill weeds, hold moisture.

CHART NO. III.—PLANTS.

Study farm plants, corn, oats, potatoes, etc.
Gardens.
Vegetables.
Trees.
Leaves.
Twigs.
Buds and flowers.
Spring flowers.
Seeds and fruits.

CHART NO. IV.—ANIMALS.

Children's experiences with animals.
Study farm animals—Cow, horse, dog, etc.
Insects.
Birds—Migration, nests, habits, uses.
Domestic animals.
Wild animals—Squirrels, etc.

CHART NO. V.—RESULTS.

Observation.
Enjoyment.
Knowledge.
Home and school united. Value of reading books.
The patrons must stand by the teacher and the teacher must stand by the patrons.

All country children are interested in the farm and its products. From their own personal experiences and observations they know a great deal about the farm. They know something of its geography, and through the influence and inspiration of a wide awake teacher they may get from local conditions a true foundation for future work in science and geography. Starting with the farm as the center of interest the following line of work easily follows: Talk about the farm. Make this general and allow the whole school to take part. Be sure that the beginners have a chance to tell something. The enthusiasm aroused because they really know something to say and want to say it, will do much to encourage perfect freedom of expression. It too often happens that children have feeling of timidity and fear upon entering school. This is wrong. The same spirit of freedom and confidence must hold in the school as in the home, otherwise school life will not be enjoyed and the children will not be happy and contented as they have a right to be. Draw farms. Do much of this work. Of course the smallest children will have to be helped. They will, however draw something that stands for a farm to them. What if their barn is as big as a field? Later on they will get proportion. Any work representing an honest effort of the child, however imperfect it may be, must be accepted by the teacher as good. Drawing the farm opens the way for drawing school district, county, State, etc.

Plants must have soil, heat, light, moisture, work. The farmer is not able to any great extent to control heat, light or moisture, but he can work on the soil. Lead the children to bring in all sorts of pebbles, sand, soil, found in the district. It is important that the children do this work rather than the teacher. When the needed material is at hand because of their efforts an interest is awakened which otherwise would not hold. It may be some of the patrons will not understand the motive of the teacher in having the children bring to school "dirt." A friendly talk with them in which her plan is explained is usually sufficient to overcome any objection. Very few patrons oppose any move a teacher may make when they understand what she is driving at, and they have a perfect right to understand it. The children will become greatly interested in the subject of drainage. Almost any country school district has illustrations of highly productive soil, made so by buried drain tile or open ditches. Naturally plants that grow upon the soil die and decay upon it, and what they have taken from it in growth is returned at death. The farm products being removed makes the soil unnatural and fertilization becomes necessary. This fact makes it advisable as far as possible to feed on the farm whatever it produces. A farm is like a bank account, if it is continually drawn upon and nothing returned it will not last long. That the soil may be profitably productive requires careful, intelligent cultivation. This cultivation mixes the soil and the fertilizer, helps the roots to easily pass through it, kills the weeds and helps it to hold moisture. In working out this line of work with country children it must not be made difficult. Only those conditions and facts easily observed and understood should be considered. A study of the soil leads to a consideration of its product, which is plants. Make charts classifying plant life under different heads, such as different kinds of grain raised on the farm, garden vegetables, wild trees, cultivated trees, etc. Have these charts hanging on the walls and add to the list from time to time. Take up the life history of the more common farm plants—corn, for instance. Kind of soil necessary, when planted, how long growing, form of stalk, blades, roots, etc., bushels per acre, price per bushel, uses of corn. In the spring study the growth of plants and have some growing in the school house. The children take great interest in little house gardens made in small boxes. The vegetables of the farm and garden may be studied with interest and profit. Here is a chart I found a few days ago in a little country school. You see the picture of the pumpkin taken from a seed catalogue, at the top of the chart; here is the turkey and here the Pilgrim Fathers—you already get the idea. It was made for Thanksgiving. I want to read you a beautiful little poem which forms a part of the chart.

HISTORY OF THE SEED.

I.

THE SEED.

Just a little seed,
Very small indeed,
Put it in the ground,
In a little mound,
And wait and see
What it will be.

II.

THE VINE.

The seed became a lovely vine,
That o'er the brown earth used to twine,
And at our feet so very low
Went on and on, to grow and grow.

III.

THE FLOWER.

The summer rain, the summer shine,
That wet and warmed the pretty vine,
Had somehow quite a wondrous power,
Which wrought this lovely yellow flower.

IV.

THE FRUIT.

The little flower grew and grew,
In sun, and shower, and moistening dew,
And when the leaves began to fall,
There lay this gorgeous yellow ball
The prize for harvest best of all.

V.

THE PIE.

Hurrah for the tiny seed!
Hurrah for the flower and vine!
Hurrah for the golden pumpkin,
Yellow, and plump and fine!
But better than all beginnings,
Sure nobody can deny,
Is the end of the whole procession—
This glorious pumpkin pie.
—*The Youth's Companion.*

Now the thoughtful teacher who did this work saw the opportunity and added this memory gem:

MEMORY GEMS FOR LITERATURE.

Kind hearts are the gardens,
Kind thoughts are the roots,
Kind words are the blossoms,
Kind deeds are the fruits.

Such work makes children happy and contented. Children easily become very much interested in trees. Work along the line of what trees give us, such as houses, furniture, fuel, fruit, shade, beauty, etc. Make collections of leaves. I have seen country school houses beautifully decorated with leaf borders, the work and much of the planting having been done by the children. Watch for early spring flowers. The violet will be among the first to come. Make much of its appearance by song and story. There are a great many little songs and poems which may be used in nature study work.

Following the same general plan suggested for plants, make charts classifying animals. Lead the children to be entirely free in giving their experiences with animals. Boys and girls living on a farm at some time have had experiences of some sort and they should be given an opportunity to tell of them. Study the farm animals, such as cow, horse, dog, etc. Always make comparisons as to their food, their coverings, habits of living and degree of usefulness. Out of this work should come a greater appreciation of farm animals.

The early fall offers special advantages for the study of insect life. Never study an insect, or any animal, for that matter, at the cost of its life. Do not undertake any work that necessitates even the giving of pain to any animal. We can not afford to accustom children to such performances. Nothing is more attractive to children than a study of birds. Lead them to know by name birds common to the locality. Make charts based on their manner of living—land birds, water birds, birds living mostly in trees, etc. Birds nests are of much interest, places where they are built, and materials used. This

may all be done after the mother bird has raised her young. All nature study work should have as one of its important results a spirit of kindness toward animals. The very general disposition of children to destroy life must be changed.

Now let us consider for a few minutes the matter of results. Beginning with the farm in a general way we afterward consider the soil and from a study of the soil comes the consideration of animal and plant life. From all this comes to the children the ability to observe, enjoyment and useful knowledge. The home and the school are united in a more decided way.

Nature lessons train the child to see, and the seeing must always be followed by the question—why is this? He observes that the cow chews her cud, that the milkweed seeds have a sort of sail attached to them, that the teeth of different animals are unlike, etc., and under inspiring teaching the ability and disposition to see is followed closely by a desire to know the reason.

Science work gives the child knowledge, not only of a practical sort, but enables him, because of his ability to appreciate his surroundings, to really enjoy life. The work not being made laborious, but done with a great degree of comjort, furnishes a splendid basis for language exercises and word getting. New words come easily and rapidly when the child knows he really needs them.

Nature study is especially valuable as a means of uniting, in a more decided way, the home and the school. The teacher must first gain the confidence of the people; this makes it easy for her to so direct the work that they come to know that the school is an important part of the community and by no means a separate affair, which the law compels them to support. The home and the school must act in harmony. The more a love for home is developed and sustained the greater will be its power of coöperating with the school for good. The child once in school the teacher by law and authority controls his body, but his soul must be won by the personality of the teacher. The child must be understood by parent and teacher. The school should develop the reading habit. There is an unlimited supply of good reading books even for children of the lowest grades. Home and school should join in getting these books for the children. A genuine love for books begets true happiness, and a supply of them compensates largely for the social disadvantages of country life. The school may be a social factor in the district. The teaching spirit being in evidence, the children are inspired with a broader and higher life, and the influence of the school for good is manifest throughout the district.

FARM ORGANIZATION DEPARTMENT.

MUTUAL FIRE INSURANCE.

By J. W. Whitson.

"Mutual insurance, or What the Schuyler County Mutual Insurance has Done and is Doing," was handled by J. W. Whitson at the Farmers' Institute. Not having prepared a paper for the occasion Mr. Whitson delivered a short address that was full of facts and to the point. The following is a synopsis of what he said:

It affords me a high degree of pleasure to be able to present to you today a few facts and figures in regard to mutual insurance. I shall not burden you with a long array of figures, nor with a history of mutual farm insurance in all its details, but will say that the Schuyler County Farmers' Mutual Insurance Company was organized five years ago this fall with about \$53,000 of insurance; at the end of the year 1897 was carrying over \$307,627 of insurance, and have already written over \$110,000 since the beginning of this year, which brings us now to approximately \$417,000 of insurance.

To show you the growth and prosperity of mutual insurance I wish to quote a few paragraphs from the reports of our State Superintendent of Insurance. In his insurance report dated June 1, 1872, Hon. C. E. Lippencott says:

"The 27th General Assembly passed an act of the following title: 'An act to incorporate and to govern Mutual Fire Insurance Companies in Township, approved April 3, 1872, in force July 1, 1872.' In my opinion this act can not fail to demonstrate within a reasonable time to its friends that the insurance facilities thus obtained will prove very burdensome and expensive, under the mistaken guise of cheapness, and in time of need a very irresponsible one. This has been the experience in other and older states with the class of companies which this law proposes to inaugurate in Illinois.

"The business of fire underwriting ought to command and obtain the best ability of the country. To none others, for the common good, should it be intrusted. * * * This law in its very nature can be in none but untried hands.

"In such company instead of being really insured, you become an insurer, not protecting yourself by your own care and watchfulness, but you assume and become responsible for the carelessness and sometimes the criminalities of your neighbors, within a limited radius of six to eighteen miles."

In his report for the year 1895 Mr. Durfee says: "At the time the above gloomy prophecy was made, nine county and township mutual fire insurance companies had filed in the auditor's office statements of their business for the year ending December 31, 1871. They were considered of so little importance that tabulated statements of the business done by them were not incorporated in the Auditor's annual report.

"The report for the year ending December 31, 1872, showed that eleven such companies had filed their annual statements. In contrast with these reports, notwithstanding the pessimistic assertions made by the then Auditor, in 1872, 197 township, district and county fire insurance companies filed their

annual statements for the year ending December 31, 1895, showing a very remarkable growth and success of farmers' mutual insurance for the year previous."

James R. B. Van Cleave, the present Superintendent of Insurance for this State, in his last annual report has this to say about our kind of insurance:

"In these mutual insurance companies it has been fully demonstrated that insurance on the mutual plan can be successfully carried on. In the State of Illinois, at the close of the year 1897, there was over \$128,000,000 of insurance in force, divided among nearly 100,000 policy holders, and at an average cost of 22 cents for each one hundred dollars of insurance. The average cost of insurance in the joint stock companies was \$1.07, a difference of 85 cents in favor of mutual companies.

"This result, taking into consideration that these companies are managed by men not experienced in underwriting and in nearly every instance by men who give their time and attention to other pursuits of life, is remarkable. This could not have been attained had not the most rigid economy been practiced and the most careful selection and inspection of risks been exercised."

Gentlemen and ladies, I have read from these reports because they are the highest authority, and are unquestionably correct, coming as they do from the officers at the head of the Department of Insurance at Springfield. And now I wish to give you some examples of the difference in the cost of mutual and old line insurance. I have in mind a policy that was taken out in an old line company about five years ago, or about the time our company was organized. This policy was for \$1,100, and the insured paid \$33 for it. We wrote several \$1,100 policies in our mutual at that time and the initial cost of each of them was \$3.20. Our \$1,100 policy holders have had an assessment of \$2.31 to pay, making their five years of insurance cost them \$5.51. We think all will admit that it is reasonable to compute interest on the difference in initial cost, as money always draws interest when in use. We find the difference between \$33 and \$3.20, the initial cost on the two policies in question, to be \$29.80. This amount at 6 per cent interest for five years would accumulate \$8.94. This, added to the \$33, gives us \$41.94; and subtracting the \$5.51, the total cost of one of these policies in our company, from this amount, we find we have \$36.43 in favor of the mutual plan on a policy of \$1,100 for five years' time.

We found in Mr. Van Cleave's report that the difference in the cost of insurance in that year, 1897, was 85 cents on the one hundred dollars. Figuring on this basis we find that the \$307,627 of insurance in force in our company at the end of 1897 saved the farmers of the county \$2,615. to say nothing of what has been saved by the \$110,000 written up since that time.

I have by these figures and these reports endeavored to make it so plain that even the school children in this audience can understand that the Schuyler County Farmers' Mutual Insurance Company has been and is saving hundreds of dollars annually to the farmers of our county. And now in conclusion I wish to read an extract from an address delivered by the Hon. B. K. Durfee before the national convention of mutual insurance at Chicago in 1896:

"In the early days there was much and persistent opposition to overcome; an idea was extant that the insurance business could only be undertaken by experts and that experiments carried on by the uninitiated could only lead to disaster. The general conditions applicable to insurance at large it was thought would apply to local insurance among neighbors, and the long list of disasters to stock companies would be duplicated among your own companies. It is not necessary to enter into the detailed reasons given by the opposition as to why your plan must become a failure. You are undoubtedly already familiar with them. Suffice it to say that the remarkable success achieved by you is shown from the fact that out of about 230 companies organized in this State under special and general laws only about 30 have ceased to do business in the last 25 years; while during the same period of

time nearly 250 old-time companies have fallen by the wayside, and, at the present time, but about a dozen old-time companies, chartered in this State, are in existence.

"All insurance is practically mutual, and the capital stock of stock companies is simply a guarantee to the policy holder that the contract made with him will be carried out, or in other words, that the policy holders in the company will mutually contribute a sufficient sum to meet the losses of the few and pay the expenses of management, together with a reasonable per cent upon such guarantee capital. In township mutual insurance many elements of loss and cost are eliminated; moral hazard more largely than anything else. It is estimated that one-half of the losses by fire in the United States are preventable, growing out of arson, buildings illy constructed and carelessness. In neighborhood mutual insurance each individual policy holder is interested in reducing to a minimum all these elements of hazard, because, in doing so, he protects his own pocketbook.

"A carefully collected list of special charters granted by the State of Illinois from 1835 to 1870, numbering over 270, shows that the first farmers' insurance company chartered was the 'Addison Farmers' Mutual Insurance Company' on the 15th day of February, 1855. It is yet doing business. The next chartered was the 'Crete Farmers' Mutual Insurance Company,' February 20, 1861, yet doing business. From this small beginning 41 years ago has grown up an interest with the magnificent showing of over 82,500 policies in force in nearly 200 companies, covering over \$112,200,000 of insurance at the close of 1895, as shown by the returns made to the Insurance Department of this State, being an increase over the preceding year of about 3,000 policies in number and an increase of about \$9,000,000 in the amount at risk.

"In conclusion, permit me to say that your farm is your capital, the crops you derive from it your dividend, and your mutual insurance the guarantee against unforeseen disaster, each dependent upon each other, and your present and future prosperity dependent largely upon them all."

ANNUAL REPORT AND ORGANIZATION OF THE ILLINOIS LIVE STOCK BREEDERS' ASSOCIATION,

COMPOSED OF

Illinois Horse Breeders' Association,
Illinois Cattle Breeders' Association,

Illinois Swine Breeders' Association,
Illinois Sheep Breeders' Association,

FOR THE YEAR 1898.

Compiled by Fred H. Rankin, Secretary, Athens, Ill.

Officers of the Illinois Live Stock Breeders' Association—President, A. P. Grout, Winchester; First Vice-President, John H. Kincaid, Athens; Second Vice-President, Jacob Zeigler, Clinton; Secretary, Fred H. Rankin, Athens; Treasurer, S. Noble King, Bloomington. Executive Committee: A. P. Grout, Winchester; John H. Kincaid, Athens; Jacob Zeigler, Clinton; Fred H. Rankin, Athens; George Williams, Athens; J. H. Pickrell, Springfield; Charles F. Mills, Springfield; John G. Springer, Springfield.

CONSTITUTION OF THE ILLINOIS LIVE STOCK BREEDERS' ASSOCIATION.

I.—NAME.

This Association shall be known as the Illinois Live Stock Breeders' Association.

II.—OBJECT.

The object of the Association shall be the promotion of the interests of the breeders of live stock in Illinois.

III.—MEMBERSHIP.

The membership of this Association shall consist of the Illinois Horse Breeders' Association, the Illinois Cattle Breeders' Association, the Illinois Swine Breeders' Association, the Illinois Sheep Breeders' Association and the Illinois Poultry Breeders' Association.

IV.—OFFICERS.

The officers of this Association shall consist of a President, four Vice-Presidents, said Vice-Presidents to consist of the Presidents of the Associations named above, a Secretary and a Treasurer.

V.—EXECUTIVE COMMITTEE.

The Executive Committee of this Association shall be composed of the Presidents and Secretaries of the five Associations named above.

VI.—TERM OF OFFICE.

The officers and committees named above to serve one year, or until their successors are elected and installed.

VII.—MEETINGS.

The meetings of this Association shall be held annually in the State Capitol, Springfield, at such time as may be designated by the Association or its Executive Committee.

VIII.—AMENDMENTS.

These by-laws may be amended or altered at any regular meeting (or special meeting called for the purpose) by a two-thirds vote of those present and voting.

Officers of the Horse Breeders' Association—President, John H. Kincaid, Athens; Vice-President, S. Noble King, Bloomington; Secretary, George Williams, Athens; Treasurer, J. F. Smith, Auburn. Executive Committee: J. C. Ware, Champaign; A. F. Moore, Polo; F. W. Beardsley, Gibson City; J. Tabor Mather, Jacksonville; John Landrigan, Albion; D. Brenneman, Decatur.

CONSTITUTION OF THE ILLINOIS HORSE BREEDERS' ASSOCIATION.

PREAMBLE.

We, the Horse Breeders of the State of Illinois, recognizing the importance of a State organization having for its object the promotion of the interests of the horse breeders, do hereby unite in forming an association to be known as the Illinois Horse Breeders' Association.

CONSTITUTION—ARTICLE I.

NAME.

This organization shall be known as the Illinois Horse Breeders' Association.

ARTICLE II.

OBJECT.

The object of this Association shall be the holding of annual meetings for the discussion of all matters relating to the breeding, handling and marketing of horses and such other matters as may tend to promote the interests of its members.

ARTICLE III.

MEMBERSHIP.

SECTION 1. The membership of this Association shall consist of reputable citizens of the State of Illinois who are interested in the horse industry.

Sec. 2. All questions of membership or expulsion to be passed on by the Executive Committee.

ARTICLE IV.

OFFICERS.

SECTION 1. The officers of this Association shall be a President, a Vice-President, a Secretary and a Treasurer.

Sec. 2. The President, Vice-President, Secretary and Treasurer, with five (5) additional members to be chosen by ballot, shall constitute the Executive Committee with full power to manage the affairs of the Association during the intervals between annual meetings.

ARTICLE V.

MEETINGS.

SECTION 1. The annual meetings of this Association shall be held at such times and places as may be designated by the Executive Committee; thirty days' previous notice to be mailed to each member of this Association, giving time and place of meeting.

Sec. 2. The Executive Committee shall hold meetings on the call of four or more of the Committee, and a majority of the members shall constitute a quorum.

ARTICLE VI.

DUTIES OF OFFICERS.

SECTION 1. The duties of the officers and the Executive Committee shall consist of such services as generally pertain to their respective stations.

Sec. 2. All bills against this Association shall be presented in detail and shall be paid only on the order of the President and countersigned by the Secretary.

ARTICLE VII.

AMENDMENTS.

This constitution may be amended or changed at any annual meeting of this Association by a two-thirds vote of the members present.

BY-LAWS OF THE ILLINOIS HORSE BREEDERS' ASSOCIATION.

ARTICLE I.

NAME.

This Association shall be known as the Illinois Horse Breeders' Association.

ARTICLE II.

THE OBJECTS.

The objects of this Association shall be the promotion and betterment of the horse industry of the State of Illinois.

ARTICLE III.

MEMBERSHIP.

The members of this Association shall be reputable citizens of the State of Illinois who are interested in the horse industry in the State.

ARTICLE IV.

OFFICERS.

The officers of this association shall be a President, a Vice-President, a Secretary, a Treasurer, and an Executive Committee of nine (9), of which the officers named shall be *ex-officio* members.

ARTICLE V.

MEMBERSHIP FEE.

The membership fee shall be one dollar (\$1.00) which will cover the first year's dues.

ARTICLE VI.

ANNUAL DUES.

The annual dues of this Association shall be one dollar (\$1.00).

Officers of the Cattle Breeders' Association—President, A. P. Grout, Winchester; Vice President, J. F. Prather, Williamsville; Secretary, J. H. Pickrell, Springfield; Treasurer, Thomas Clark, Beecher. Executive Committee: Col. W. A. Fulkerson, Jerseyville; E. E. Chester, Champaign; S. Melven, Greenfield.

CONSTITUTION AND BY-LAWS.

1. This Association shall be known as the Illinois Cattle Breeders' Association.

2. The purpose of the Association shall be for the betterment of the cattle industry in the State of Illinois.

3. The members of the Association shall be reputable citizens of the State of Illinois who are interested in the cattle industry.

4. The officers of the Association shall be a President, a Vice-President, a Secretary, a Treasurer, and an Executive Committee consisting of seven members, including the President, Vice-President, Secretary and Treasurer.

5. That the membership fee for this Association shall be \$1.00.

6. That the annual dues of the Association for each member shall be \$1.00.

7. That the Secretary shall cause to be published, from year to year, and in the *interim* when it is ordered, the proceedings of the Association for distribution.

Officers of the Swine Breeders' Association—President, Fred. H. Rankin, Athens; Vice President, C. E. Vigal, New City; Secretary, Charles F. Mills, Springfield; Treasurer, J. R. Fulkerson, Jerseyville. Executive Committee: A. P. Grout, Winchester; H. O. Minnis, Edinburg; Frank H. Whitney, Athens; W. C. Pearsons, Vermilion; J. F. Smith, Auburn.

CONSTITUTION ILLINOIS SWINE BREEDERS' ASSOCIATION.

PREAMBLE.

We, the undersigned breeders of swine, recognizing the importance of a State organization having for its object the promotion of the interests of the breeders and feeders of swine, do hereby unite in forming an association to be known as the Illinois Swine Breeders' Association.

ARTICLE I.

NAME.

This organization shall be known as the Illinois Swine Breeders' Association.

ARTICLE II.

OBJECT.

The object of this Association shall be the holding of annual meetings for the discussion of all matters relating to breeding and feeding of swine, the holding of exhibitions, and such other work not in conflict with the spirit of the constitution as in the opinion of the Association may tend to promote the best interests of its members.

ARTICLE III.

MEMBERSHIP.

The membership of this Association shall consist of the original subscribers and such other reputable citizens of this State interested in swine husbandry as may be approved from time to time by the Executive Committee, and pay one dollar annual dues.

Should it occur at any time that any member of the Association shall be charged with willful misrepresentation in regard to any animal owned or bred by him, or with any other act derogatory to the standing of the Association, or with failure to comply with the rules and regulations of the Association, the Executive Committee shall examine into the matter, and, if it shall find that such charge is fully sustained, it shall thereupon suspend such offender and lay all the facts in its possession before the Association at the first annual meeting thereafter. If, in the opinion of two-thirds of the members present, the facts shall so warrant, the name of the offending member shall be stricken from the rolls of the Association, and all his rights as a member shall thereupon cease.

ARTICLE IV.

OFFICERS.

1. The officers of this Association shall be a President, Vice-President, Secretary and Treasurer.

2. The President, Vice-President, Secretary and Treasurer, with five additional members to be chosen by ballot at the annual meeting, shall constitute an Executive Committee, with power to manage the affairs of the Association during the intervals of the annual meetings.

3. All the officers of this Association shall be elected by ballot at the annual meeting, and shall hold their offices for one year, or until their successors are duly elected and qualified.

4. At all meetings of the Association members may vote in person or by proxy, or they may send their ballot by mail to the Secretary, whose duty it shall be to vote the same as directed.

5. Any vacancies occurring during the *interim* may be filled by the Executive Committee.

ARTICLE V.

MEETINGS.

1. The annual meeting of the Association shall be held at such time and place as may be designated by the Executive Committee, thirty days' previous notice to be mailed to each member of the Association, giving time and place of the meeting.

2. The Executive Committee shall hold meetings on the call of four or more of the committee, a majority of the committee to constitute a quorum.

ARTICLE VI.

DUTIES OF OFFICERS.

1. The duties of the officers and the Executive Committee shall consist of such service as generally pertains to their respective positions in deliberate bodies.

2. All bills against the Association shall be presented in detail, and shall be paid only on the order of the President and countersigned by the Secretary.

ARTICLE VII.

AMENDMENTS.

This constitution may be amended or changed or any other business transacted at the annual meeting with the approval of a two-thirds vote of the members present.

Officers of the Sheep Breeders' Association—President, Jacob Ziegler, Clinton; Vice President, R. Y. Kincaid, Athens; Secretary-Treasurer, John G. Springer, Springfield. Executive Committee: James A. Stone, Bradfordton; George Allen, Allerton; John Britton, Wapello; L. C. Graham, Cameron.

ILLINOIS SHEEP BREEDERS' ASSOCIATION.

CONSTITUTION AND BY-LAWS.

1. This Association shall be known as the Illinois Sheep Breeders' Association.

2. The purpose of the Association shall be for the betterment of the sheep industry in the State of Illinois.

3. The members of the Association shall be reputable citizens of the State of Illinois who are interested in the sheep industry.

4. The officers of the Association shall be a President, a Vice-President, a Secretary, a Treasurer, and an Executive Committee consisting of seven members, including the President, Vice-President, Secretary and Treasurer.

5. That the membership fee for this Association shall be \$1.00.
6. That the annual dues of the Association for each member shall be \$1.00.
7. That the Secretary shall cause to be published from year to year, and in the *interim* when it is ordered, the proceedings of the Association for distribution.

**ANNOUNCEMENT OF THE FOURTH ANNUAL MEETING OF THE
LIVE STOCK BREEDERS' ASSOCIATION, COMPOSED OF
THE STOCKMEN AND FARMERS OF ILLINOIS.**

You are cordially invited to attend the annual meeting of the Illinois Live Stock Breeders' Association, including conventions of the Illinois Horse Breeders' Association, the Illinois Cattle Breeders' Association, the Illinois Sheep Breeder's Association and the Illinois Swine Breeders' Association, to be held at Springfield, Illinois, November 15, 16 and 17, 1898, in the State House.

A splendid program is provided. Valuable papers and addresses on subjects pertaining to live stock husbandry and agriculture will be presented in person by the best authorities in their respective departments in the United States.

Farmers and live stock breeders, this meeting is in your interest. Let us unite and push along our live stock interests. Make an effort to attend the meeting and learn more concerning the value of good blood in your flocks and herds.

Many of the pedigree record associations have presented valuable papers concerning the history, characteristics, etc., of their respective breeds, which will be interspersed during the several sessions, as opportunity is afforded for the reading of the same by the authors in attendance.

A. P. GROUT.

President.

FRED H. RANKIN.

Secretary.

PROGRAM—TUESDAY, NOVEMBER 15, 1898.

Afternoon session, 1:30 o'clock.

Called to order.

President's Address—Hon. A. P. Grout, Winchester, Ill.

Secretary's Report—Fred H. Rankin, Athens, Ill.

Address—"Clover Growing and Its Relation to Improvement in Live Stock." Henry Wallace, editor *Wallace's Farmer*, Des Moines, Iowa.

Evening session, 7:30 o'clock.

Address—"Animal Industry as a Business in the United States," Prof. C. S. Plumb, director of Agricultural Experiment Station, Lafayette, Ind.

Address—"The Breeding and Feeding of Swine," Hon. A. J. Lovejoy, Roscoe, Ill.

WEDNESDAY, NOVEMBER 16, 1898.

Morning session, 9 o'clock.

Address—"The Feeding and Marketing of Sheep." Hon. Jacob Zeigler, Clinton, Ill.

Address—"Sheep Husbandry," Prof. John A. Craig, Professor of Animal Husbandry, Iowa Agricultural College, Ames, Iowa.

Afternoon session, 1:30 o'clock.

"Cattle Feeding"—Addresses by Mr. L. H. Kerrick, Bloomington, Ill.; Hon. E. E. Chester, Champaign, Ill.; Col. W. H. Fulkerson, Jerseyville, Ill., President State Board of Agriculture.

Evening session, 7:30 o'clock.

Address—"An Undeveloped Market for Pure Bred Males," Prof. Eugene Davenport, Dean and Director College of Agriculture, University of Illinois, Champaign, Ill.

Address—"Breeding, Exhibition and Sale of Pure Bred Stock," Mr. T. F. B. Sotham, Chillicothe, Mo.

THURSDAY, NOVEMBER 17, 1898.

Morning session, 9 o'clock.

Address—"The Marketing of Live Stock," Mr. John Clay, Jr., Chicago, Illinois.

Address—"The Bacon Hog," Prof. Thos. Shaw, Professor Animal Husbandry Agricultural Experiment Station, University of Minnesota, St. Anthony Park, Minn.

Afternoon session, 1:30 o'clock.

Address—"Horse Breeding," Hon. Norman J. Coleman, First Secretary of Agriculture, St. Louis, Mo.

Address—"The Horse and His Market," Prof. John A. Craig, Professor Animal Husbandry Iowa Agricultural College, Ames, Iowa.

PROCEEDINGS OF ILLINOIS LIVE STOCK BREEDERS' ASSOCIATION.

The association was called to order at 2 o'clock p. m. Tuesday, November 15, 1898, at the Court House, Springfield, Ill., by the President, Hon. A. P. Grout, of Winchester.

President—Gentlemen, the hour has arrived when this annual meeting of the Live Stock Breeders' Association of Illinois should be called together. We had hoped to see a much larger attendance than we have here at this time, still, I think, that there are many in the city who will be here before this meeting of the Association is over. According to the program as we have it made up, the first will be an address by the President.

The President, Hon. A. P. Grout, then read an address.

LIVE STOCK BREEDING.

It is hoped and expected that the meeting of the Illinois Live Stock Breeders' Association on this occasion will mark a new epoch in its history; that its success in awakening and arousing the stock growers and breeders of the State may be such as to permanently establish it among the useful organizations of the State and make it the educator and promotor of the greatest and most important factor of all our agricultural interests. We hope through the instrumentality of this association to see the great State of Illinois take the rank to which its location, resources and natural advantages entitle it, and in the immediate future outrank every state in the union, if not every country on the globe, in the extent and quality of its herds of cattle, horses, sheep and hogs.

We are situated in the center of a vast territory—in the heart of the great Mississippi valley, with every possible facility for transportation—the great navigable Mississippi on the west, the Ohio on the south, the vast inland seas on the north, and the great trunk railways extending through the State in

every direction. We are midway between the cold, bleak winters of the north and the hot and fever infected section of the south. Our climate is neither too hot nor too cold. It admits of the growth of corn, the greatest of all meat and fat producers, in its fullest perfection and abundance, and blue grass, the greatest boon to all stockmen, is indigenous to our soil and climate.

That Illinois should rank first among all the states of this union in the number and superior quality of its live stock is no Utopian scheme, but the idea is founded in our vastly superior natural advantages, of which we have only to avail ourselves and the boon is ours.

Nowhere on the face of the earth are the environments so favorable for the production of stock of the highest beef, pork and mutton type as in our own great State. Our very surroundings are more conducive to large growth in the animal, to rotundity and perfection of form and completeness of finish, than anywhere else in the United States.

Our association is composed largely of the breeders of pure bred stock, and it is our province, as an organization, to seek to broaden and extend the markets for our breeding animals.

The unsurpassed natural advantages of Illinois have designated it as the greatest stock growing State of the union. The State has provided the money and grounds, furnished them with magnificent buildings and equipments, and today maintains the greatest and grandest State fair in the country. It now remains for the farmers and breeders of Illinois to equal this achievement by producing the finest and best stock to be found in the country.

There is no reason why we should not become preéminently noted for the number and quality of our herds of fine stock, or why our herds of pure bred cattle, horses, sheep and hogs should not make Illinois the Mecca for the breeders of fine stock from every state and section of this broad land. The object is most inspiring and grand; the possibilities incalculable, and the accomplishment lacks only a higher appreciation of the splendid opportunities and possibilities within our reach. How this end can be best accomplished, and what this association can do to advance its own interests as well as those of the State, is the question of the hour. It may be said that the first requisite is the production of stock of the best and finest quality; but of this fact and necessity the members of this association are undoubtedly fully aware. The undisguised fact remains, however, that our breeders of pure-bred stock need the stimulus and encouragement of a demand and market for their stock—a market that will pay them for producing stock of the best quality. We believe it to be the province of this association to advance its interests by every reasonable and legitimate means, and that it is fully as important to provide a market as it is to produce the stock.

It has been said, "that the manufacturer who does not give quite as much attention to disposing of his goods as he does to making them, is not likely to be very successful." "That the world ought to come and give him a good price for his output, perhaps, but it won't."

This is our condition as live stock breeders today. We must pay just as much attention to the development of a demand for our stock as we do to the production of the stock itself. That Illinois is not today the leading live stock state in the union is sufficient evidence that our farmers have not passed beyond the era of the soil-robber or supplemented animal husbandry for cereal production. It is unquestionably true that the farmers of Illinois do not realize the extent to which they are robbing the soil of that marvelous store of fertility with which it was originally endowed by growing crop after crop of corn and wheat and other grains without manure. They do not realize the fact that the growing of live stock in some of its various forms is inseparably connected with the highest type of farming, or that the failure to keep live stock by so many of our farmers is fraught with danger to the prosperity of our State. In view of such a state of facts and such conditions it would seem to be one of the essential and primary duties of this association, and in line with the ideas and objects which have brought it into existence, that it should endeavor in every way possible to educate the farmers of this State in the new and better type of agriculture—the agriculture of animal

husbandry, not because the outlook for live stock is today better than it was a few years ago, but because of its own intrinsic and inherent worth, and because it recognizes the fact that a system which returns to the soil 90 per cent of all the fertility removed by the crop, can not fail to raise our lands to a high and constantly increasing state of productiveness, while at the same time the returns will be larger than by any ordinary system of cereal production.

Every Live Stock Breeders' Association should see to it that properly equipped and thoroughly competent speakers are provided for all our farmers' institute meetings, who will impress upon the farmers of Illinois the absolute necessity of making some form of stock raising the basis and foundation of all operations. By such a course we will not only promote and build up our own interests, but will become benefactors as well. There is no gain-saying the fact that there is a limit to the fertility of our soil, and to such an extent has this grain-growing and soil-robbing process been carried on, that in many sections the earth can no longer be tickled with the hoe and be made to laugh with a harvest. The goose that lays the golden egg has been ruthlessly slaughtered and the soil-robber has worked out his claim.

The times are now propitious for the man with the dairy cow, the fat steer, the highly bred pig and the mutton sheep, the man of herd books and stock shows. There is a demand for the man who every day works a miracle, who takes tons of hay and grain and transforms it into butter and cheese, and who takes a field of corn and makes it walk to market on its own legs.

It has been said that the policy which the farmers of Illinois must adopt, if they ever expect to attain their former prosperity, and reach out for that degree of prosperity which our unexcelled natural advantages intend we should secure, is to provide a home market for crude products. By a home market we do not mean a market in the eastern cities or the cities of Illinois, but the market on the farm, a market for corn, oats, hay and grass on the farm on which they grow, and without any cost of transportation. It means that all feed stuff should be marketed through the animal. Nothing but live stock can provide this kind of a market. The demand is now for more consumers, more "condensing factories," represented by good feeding cattle, sheep and swine. There must be live stock to assist in keeping up the fertility of the soil, to assist the proper rotation of crops, to furnish a home market that will enable us to use, to the best advantage, and at the least expense for transportation, our grain, hay, corn-fodder and other roughness, and in the end to condense freight tonnage to the minimum.

Live stock of some kind, or in some form, is an absolute necessity on every well conducted farm in Illinois today. We do not urge it as a popular fad, or so much as a paying investment in itself, but as the basis and foundation of permanent and successful farming. In advocating the use of live stock as the basis of all farm operations, we are not only advancing our own interests as stock breeders, but are conferring a sure and lasting benefit upon the farmers of Illinois. But these are not all the educational features connected with our work, if we would make this association effectual and beneficial in its operations.

There is the right and the wrong kind of stock to be taken into consideration. There is the well bred animal which, if properly cared for, will show a handsome return for the feed given it, and pay a profit for its keeping. There is also the scrub, which is pretty sure to lose money for its owner or feeder. And then there is the care, feed and management of stock, and the thousand subjects upon which the average farmer needs instruction, in order to insure success. In endeavoring to improve and educate ourselves in these meetings, we should keep the fact steadily in mind that there is a grand opportunity for missionary work among the farmers of Illinois, and that "bread cast upon the waters may return to us after many days." (Applause.)

President—Next will be the report of our secretary, Mr. Fred H. Rankin, of Athens, Ill.

ADVANTAGE OF STOCK BREEDERS' ORGANIZATIONS.

Mr. President, Gentlemen of the Illinois Live Stock Breeders' Association:

A full and complete report of the proceedings of the annual meeting of this association held in Supreme Court room, State House, January 20, 1898, appears in volume III. of Report of Illinois Farmers' Institute, a copy of which has been placed in your hands. Said report was prepared, as you will note, by Hon. J. H. Pickerell, your capable secretary, and to whose organizing genius and faithful work this association mainly owes its existence. (Applause.) In the place of reading these formal minutes, which the secretary is supposed to present to you, I will commend to your careful consideration the report of the proceedings of the last annual meeting, which are found in the aforesaid volume, and will speak a few words as to the value of an organization like our.

In these progressive times the live stock interests of our State can not be carried on with the greatest success without an organization that has its interests in charge, and this organization should be supported by those who expect to realize the benefits therefrom in the persons of our progressive farmers and stockmen.

We have come here to form friendships, sustain each other and work together in a common cause. If we succeed in this we will increase the usefulness of our association. If we fail in this we had better have staid at home. The addresses and discussions thereon at this meeting will contribute to help the producers of our commonwealth. The men interested in this and kindred organizations are specialists. They are not mere soil-robbers.

The Illinois live stock farmer does not simply plow and plant, and haul the raw material to market. No, he operates a condensing factory. He puts corn and blue grass and clover into pork and beef and mutton. His grain crops walk to market, and their manurial value is saved to restore to the land which has fed his crops. It is with thoughts along this line that the management have thought and planned in arranging the program for this meeting. We want to make these meetings useful and in a practical way helpful to the farmer as well as to the breeder of recorded stock.

If in the past the Illinois Live Stock Breeders' Association has not been able to make a very brilliant record, or has not made itself felt in a practical way, it is primarily because it has not gotten close enough to the people and our stockmen have not seen or felt it to their interests to belong to it.

This association needs an active, working membership. That is what counts. That is what makes it ours—an individual affair to each of us.

An organization is useless unless it brings coöperation, which means systematic pulling together and in the same direction.

What this association shall do for the advancement of live stock husbandry in Illinois depends entirely upon your opinions and what you are willing to do. You take great pride in assisting the capable men composing our State Board of Agriculture in building up a State Fair that stands prééminent as the American Royal, and you support it well—by your attendance; but allow the enterprising stockmen from other states to come in and take away the larger per cent of the ribbons.

Is not this fact sufficient commentary on the urgent need of just such an educating program as is presented at this meeting to Illinois live stock breeders?

The management of this association have spared neither time nor means to provide you at this meeting with a program of real merit. The time is cheerfully given, and as to necessary expenses, we are willing you should share that with us. It is distasteful to ask those in attendance at a meeting of this character for money, but it is the only available resource whereby to meet the expenses of the meeting.

Stockmen of Illinois, are you aware that yours is the only organization of producers in the State that has to foot your own bills and go a-begging of the Farmers' Institute to get the report of your meetings published?

Let me cite you to some facts. The Illinois Beekeepers' Association, that does not represent as great an interest as even the smallest of the Live Stock Breeders' Associations, was allowed an appropriation of \$500. The Illinois Poultry Keepers' Association was granted \$1,000, and the State Horticultural Society secured \$4,000.

At the same session of the General Assembly that granted the above appropriations a committee on legislation, representing the Illinois Live Stock Breeders' Association, composed of D. W. Smith, Charles Ridgely and J. H. Pickrell, asked for an appropriation of \$1,000 a year for the sole purpose of publishing and distributing the addresses and proceedings of the annual meetings of this association. A bill asking for an appropriation of said amount in aid of the live stock industries of the State, was prepared and introduced in the Senate, by the Hon. David T. Littler, and passed that body almost unanimously. On reaching the House of Representatives, it was referred to the Committee on Appropriations, Hon. Thos. B. Needles, being chairman. A communication was addressed to him by your committee, urgently soliciting the passage of the bill, but the committee reported adversely to its passage, and the report being concurred in the appropriation failed. From which it is evident that the live stock industry, as represented by this association, was considered by our law makers as unworthy of any such recognition by the State.

Now, let me call your attention to the numbers and value in this State of the four principal classes of live stock represented by this association, as returned by the assessors at equalized values, for the year 1897.

Horsemen, you pay taxes on 946,637 head of horses, valued at \$9,930,232.

Cattle breeders, you pay taxes on 2,363,093 head of cattle, valued at \$34,278,588.

The sheepmen are taxed on 651,805 head of sheep, valued at \$534,480.

And swine breeders report 3,080,811 head of hogs, valued at \$3,974,246.

Live stock breeders of the State of Illinois, in the year 1897, one year after your request for an appropriation of \$1,000 was denied by the representatives of this State, you paid into the State treasury taxes on 7,042,346 head of horses, cattle, sheep and hogs, valued at \$48,747,546.

Gentlemen, comment on this state of affairs is unnecessary further than to say there is a reason for this, and that it does not lay at anybody's door but our own. We are careless, negligent and indifferent to the benefits that may be realized through the agency of an active, live, well supported live stock breeders' association. The trouble is, the stockmen have not co-operated and been as persistent in their endeavors as have our horticultural friends. Let us from now on become active in what concerns us and be willing to stand firm and together for the future and common good of our live stock interests, and if at any time this association should deem that interests of live stock husbandry would be advanced by legislative action, let each stockman make it a personal matter to let the senator and representative from this district understand his sentiments on the question at issue.

May this meeting inspire each of us with fresh hope and confidence in live stock husbandry as the basis of all great agriculture. (Applause).

President: The next on our program is, "Clover Growing and its Relation to Improvement in Live Stock," by Henry Wallace, of Des Moines, Ia,

President: Mr. Wallace is not present, but the secretary has a letter from him which he will now read.

Secretary read letter from Mr. Wallace, stating that he was detained but would be present the following day.

President: As Mr. Wallace can not be with us this afternoon, in order to fill up the time we have some parties here who have papers which they will now give us. We have asked several of the members of different associations to present papers concerning the history, characteristics and good points in their various breeds. Several of these associations have prepared their papers and have sent them here, or have persons here to read them. We will introduce some of those this afternoon in absence of our regular program. I believe Mr. Pickrell has a paper with reference to the Short-Horn, prepared by Hon. Wm. Warfield, of Kentucky.

Mr. Pickrell then read his paper.

Mr. W. C. McGavock, of Chestnut, read a paper on Aberdeen Angus cattle.

Before reading he stated that he misunderstood his subject a little, but as he was misinformed he would read his paper anyway.

President: We have a paper here from the Galloway Association, which was written by Mr. Marion Parr, of Cooksville, Ill., and the secretary will now read it. The paper was then read. (The foregoing papers appear in the appendix to this report).

President: I believe this is all the papers we have of this kind for this afternoon. We have an abundance of time left and it has been suggested that we throw this meeting open to any one who may desire to make any remarks of interest to this association.

A communication was next read by the secretary from Mr. J. C. Ware, of the Horsemen Association, who was, owing to sickness, unable to attend the meeting.

Mr. Pickrell was called upon to talk.

Mr. J. H. Pickrell: I have nothing important to say. I feel sorry that there are not more here in this meeting today, but we that are here get the good of it. And these papers will be published throughout the land. They will reach many other people, and we ought not to be discouraged because they are not here; for we know that they will read them and I know that the general interest of the cattle, horse, swine and sheep will be represented by papers and other things. So I am glad that we have an opportunity of coming together and reading a few of them, because I know these things can be scattered about and abroad over all the land and it will bring good and do good in every way.

President: The remarks of Mr. Pickrell have suggested an idea that it may be well for us to discuss at this time. That is, how to create an interest in our live stock meeting? It may be well for us to discuss this question and ascertain what we can do to create an interest in the State of Illinois and induce our stock men to attend meetings of this kind.

Colonel C. F. Mills: The point that I would like to call your attention to is the great importance of having a very much larger edition of all of the reports, papers and discussions of this meeting published as we have for the last three years the proceedings of the Illinois Live Stock Breeders' Association in a report of the Illinois Farmers' Institute. Of course that has given it a wide distribution and the very best class of people that we can think of. But it seems to me that this interest is growing and that it should be well to have this matter presented to our Legislature at the next session, in order that our matters may be more thoroughly looked after. I would like to ask that our president and secretary be a committee to prepare a draft of a bill, and if we find the necessary legislation have a separate and independent association to coöperate with the Illinois Farmers' Institute and have their report with the understanding that a number of reports will be made available for the live stock breeders of this State. I would like to have that matter in the line of the remarks of our president. I mean to make that as a motion.

Mr. J. H. Kincaid: I second Mr. Mills' motion and amend that he be added to the committee.

Col. Mills accepted the amendment and stated that he would help all he could.

The motion was put and carried.

Mr. Pickrell: A committee was appointed two years ago to look after this work, and I know that this committee have worked faithfully and failed to get the necessary appropriations. I wish to make a motion that when we come to vote for a man for the Legislature we vote for one that has some live stock interest in him. (Applause and laughter).

Motion was seconded and carried.

Col. Mills: The remarks that you made were on my lips just before you got on your feet. I tell you one plan we have inaugurated in Sangamon county that can be very generally inaugurated all over this State, and that is, to have a street fair about Christmas time of fat stock fed in the county of which it is held. The breeders of this State will meet in my office to talk the matter over. We propose to have premiums offered for the best steer and for the best barrow and the best weather that is fed in Sangamon county. We are going to do it as a Sangamon County Institute, as you well know we have now in Illinois a live, wide-awake Farmers' Institute in every county in this State with one exception, and one will soon be organized there. We propose in every possible way to use our county farmer's institute as agency for the purpose of advancing every new and up-to-date idea that can be presented in any way. I am satisfied that we will make a success of that exhibit here, and if we can get our exhibits here and call attention to the best animals that can be fed, it will only be a question of a little time until we can revive the interest that was once felt all over this State. During this last fall, you know that we have had in this State probably fifteen or twenty street fairs. They have been very successful. If you will say that you will appoint a committee to cooperate with the Farmer's Institute that we have discussed the importance of that matter and recommend that all over the State street fairs of fat stock be held along about the holidays. Our county fairs, as you know, are not meeting with success that they did some time ago. We know that the county fairs are not as successful and prosperous as we would like to have them, and I believe that it can be made very advantageous, and that we can create a great deal of interest in this matter which does not now exist.

President: This subject is now open for discussion. We would be very glad to hear from others on this matter.

Mr. J. H. Pickrell: I know that the horse men are present; they are always very largely represented. This association is composed of the horse and cattle breeders and swine and sheep breeders. I think the secretary ought to offer premiums as Mr. Mills has before stated. I do not know why we could not have a fat horse show at that time as well as anything else.

President: We would be pleased to hear from the horse men now.

Mr. Butterworth, of Chicago: Well, we find that the horse has to be well fattened to get successfully into the market. The interest in this country is reviving very rapidly along with the other important breeds of stock. Illinois, of course, has a front rank in horse breeding. I presume it will be as well encouraged for breeding now as in former years. There are but few of the horse breeders at this meeting now, but I presume that later in the week there will be some of the other breeders in attendance. I am very glad to see the Illinois Live Stock Association pushed and developed as it is by its officers. I hope to see a great deal of encouragement at this meeting by the breeders. There is abundant work for the breeders and farmers who are identified with the Illinois Live Stock Association in keeping up a State organization. We certainly ought to make our annual meeting as largely attended as in the other states. I hope that the proceedings of this meeting

and these able papers will be sent abroad and that they will encourage breeders in general to come out and make them larger and more successful meetings.

Colonel Mills: We have with us one of the most progressive men in the country, and a man who I would like to ask the privilege to have every one of you listen. It is Professor C. S. Plumb, of Lafayette, Ind. I would like to have a report from him as to what means they use for securing such large and enthusiastic audiences as they have of their Live Stock Association every year. We have only started recently in these live stock meetings here in Springfield, and we want to know how it is that you succeed in having such a large attendance every year.

Professor C. S. Plumb: Mr. President, in Indiana we have two schemes by which we get crowds and one of them commands my utmost attention above the other, and it is caused by personal experience. About 1890 we organized an association in Indiana. Now, as you are familiar, Indianapolis is the center of the state, and therefore the general opinion was that Indianapolis was the most accessible place for people to come to from all over the state. So for four or five years in Indianapolis they sent out programs and in every possible way earnest efforts were made towards securing a large attendance, but that did not secure the audience we thought it would and that we desired; each year there was only an audience of forty or fifty in our meetings.

I remember distinctly that one day when we had a meeting in the Denison Hotel the question was asked just as it is now, "how are we going to get a greater attendance?" There were two opinions came up there. Some said as Indianapolis was the largest center of the geographical state that that was where the crowd should come; others said (and I was among them) that if we could not get the crowd to Indianapolis we ought to go to the crowd. So we adopted the scheme of going into the state after the people. We were a struggling organization until we started out into the state. We had no money excepting what we raised from dues and solicitations. We printed each year the proceedings of the meetings and had them generally distributed, so that we were thus able to keep a copy moving all the time. I want to tell you that each year it has grown very fast. Our membership each year just doubles itself. Our present program that is coming out has twenty-two on it, and every one is guaranteed to be there. I can assure you that the town we are going to this year will give us a crowded house. Furthermore, two years ago the legislature of Indiana granted us five hundred dollars a year in recognition of our work, and you don't know how much good it has done that association. Now we get our last annual report of over two hundred pages and we are looking ahead with a degree of encouragement that surpasses all of our expectations. Now at the next meeting we are going to have representatives from New York and other states and we are drawing upon the best towns we can get. For some years we have not been able to see to people that have come there. Now this is one way we have found to be very successful. In this way you can work more effectually I believe, but it seems to me that in some portions of the state you could not fill the houses there. Illinois has some of the most famous stock men within her geographical compass of any other state. There is no lack of first-class men in the State and as good an association as was ever created in America can be created in Illinois. If you stay right here at the State Capitol you will not do so well as if you went out into the State and did a sort of missionary work that perhaps it would be difficult to do otherwise. (Applause).

Mr. Henry Wallace, Des Moines, Iowa: The experience in Iowa. Their state association is migratory. From place to place they hold their meetings and secure a very large attendance as well as they accomplish very successful work.

President: Now I am sure that those that have had this matter in charge have done everything in their power to get an interest aroused in this work and to get a crowd here today. The only thing that is lacking is the interest of our stock men and farmers. The very men that we want to reach most,

perhaps, are the ones that are not here. Now, how to create that interest and to get the people together is the great question that is troubling us at the present time, and it has occurred to me before that the idea of changing our meeting place and going out into the State was a good one. The truth of the matter is, here in Springfield, that we can come and go and people will never know we have been here. It is nothing like what it is in smaller towns, where such meetings and gatherings are not so common. It is an everyday occurrence here. Now, today is the meeting of the Grand Lodge of Odd Fellows and Daughters of Rebekah and several other meetings here. Of course such meetings as those overshadow ours. Now I hope this is the beginning of a new era for live stock breeders in Illinois and that we will place it on a solid basis in the immediate future and be able to get together large audiences who will not only be interested, but will be instructed and benefited by these meetings. I also hope that we will adopt some plan by which we can secure a better audience.

Mr. Pickrell: I move that the committee select some other place besides Springfield next year to hold their annual meeting, satisfying every point as in the line of Professor Plumb's suggestion.

Motion was seconded by Mr. George Williams, of Athens.

Motion carried.

Mr. Mills: I think that it might be very well to call attention to what a splendid program that we have for this evening's entertainment here. I think that the paper Professor Plumb has prepared deserves the attention and consideration of everybody. Mr. Lovejoy's paper will be presented and I am sure that the illustrations and plans which he will present will be fascinating and interesting, as well as very instructive. I have heard indirectly with reference to the papers and I am satisfied that that they are going to be the very best papers that we will have during these meetings. I hope that tonight we will have this room crowded full of people who are interested in this work. The papers which will be presented can not help but be very beneficial to all of us.

President: There will be no break in this evening's program, as Professor Plumb and Mr. Lovejoy are both in the city.

As there is nothing further we will stand adjourned until 7:30 this evening.

Adjournment.

EVENING SESSION.

Association called to order at 7:30 p. m. by President Hon. A. P. Grout.

Professor Plumb, director Indiana Agricultural Experiment Station, was introduced, and after being heartily welcomed, delivered an address on "Animal Industry as a Business in the United States."

He illustrated his address with stereoptican views which were highly appreciated, owing to the able manner in which the professor delivered it.

ANIMAL INDUSTRY AS A BUSINESS IN THE UNITED STATES.

When Christopher Columbus first sighted the shores of the western isles neither horse, ox, sheep or swine was known upon the American continent. The vast herds and flocks of today began their American history with the small importations which came over in the vessels of the Spanish conquerors, the Dutch navigators and the Pilgrim fathers. In what we now know as the Mississippi Valley, at that time roved immense herds of American buffalo, the only type of cattle found on the then new continent. So great were these herds that early explorers tell of seeing them in almost countless numbers, covering the face of the earth to the edge of the horizon.

The early settlers brought to America from time to time a few farm animals from the fatherland, while the Spanish explorers in particular brought a small supply of horses with them to serve in the march of conquest. It is

said that when the Aztecs of Mexico first saw the horses of the Spaniards they fell down and worshipped them. The old Dutch navigators brought over the native cattle of Holland as early as 1621, while the English settlers brought with them the common stock of the country in the time of the Massachusetts Bay Colony. The animals first brought over were so valuable that, in Virginia, for example, it was made a crime punishable by death to kill one of them.

It was the fate of the American buffalo to wither away before the inroads of the new settler from beyond the seas, while the domesticated animals which he brought over to these inhospitable shores multiplied upon the face of the earth. In fact, notwithstanding adverse conditions, farm animals increased to a degree unknown today in any part of the United States. Horses, cattle, and pigs in fact became public nuisances. In Virginia, as early as 1629, cattle were counted by the thousands. Says Eggleston, from whom I freely quote, (*Husbandry in Colony Times*. *Century Magazine*, January, 1884, page 431), in 1870, a planter in the settlements of Carolina thought it a great matter to have three or four cows. Thirty years later 200 were a common allowance, and some had a thousand head apiece.

But little attention seemed to be given to milking qualities, and while multitudes of herds filled the woods from Maine to Georgia, farmers in the northern colonies often had no milk at all in the winter, and little children were obliged to soak their bread in cider for a substitute.

"In 1666 it was a boast that it cost no more to raise an ox in Carolina than it did to raise a hen in England. The ranch system had its beginning in Virginia and the Carolinas, and among the Spaniards of Florida 'cow pens,' as they were then called, were established on lands not yet settled. It is said that hogs in these early days 'swarmed like vermin upon the earth.'"

"Sheep did not multiply to excess owing to the ravages of wolves, and the demand for wool, which was very great. Legislative action so favored wool production as to command by law that every Englishman 'go to his grave in a woolen shroud for the good of his country.'"

The introduction of the so-called pure breeds of live stock to America is of comparatively recent origin, for most of our breeds are young in years. The science of breeding, as we know it, only dates back but little over a century, when Robert Bakewell, the father of an improved live stock husbandry, made his name famous by his great work in improving the English cart horse, Long-horn cattle and Leicester sheep.

The Merino first came here in 1793, and since then many other breeds of sheep have been introduced.

The growth, extent and importance of our live stock interests in the United States make a most interesting subject for study.

We drive along the country highway, seeing occasionally a herd of cattle or a flock of sheep, and rarely give thought to the importance of the great stock interests of the land. But should circumstances take us to the Stock Yards of Chicago, where many thousand head daily are sucked into that great maelstrom of flesh and blood, then a different impression is created. Here one wonders at the immensity of this animal life and where it all comes from.

STATISTICS.

The purpose of the figures given is to show the growth of our own stock interests during the last half century, coupled with a clear expression of the present importance of the subject, both from the local and national standpoints. The figures used are derived from reports of the United States census and the Statistician of the United States Department of Agriculture.

	1850.	1860.	1880.	1890.	1898.
Horses	4,336,719	6,249,174	10,357,488	14,969,467	13,980,911
Mules.....	559,831	1,151,148	1,812,808	2,295,532	2,257,685
Milch cows.....	6,385,094	8,581,735	12,443,120	16,511,950	15,840,886
Other cattle.....	11,993,813	17,033,284	23,482,291	34,851,622	29,264,197
Sheep.....	21,723,220	22,471,275	35,192,074	35,935,364	37,656,960
Swine	30,854,213	33,512,867	47,681,700	57,409,583	39,759,992
Totals	75,352,390	89,009,483	130,969,581	161,973,518	138,740,611

We see that 1850 to 1890 the number of farm animals nearly doubled.
On January 1, 1898, the live stock of the United States had an estimated total and average value as follows:

	Total.	Average.
Horses	\$478,362,407	\$34 26
Mules	99,082,062	43 85
Milch cows.....	434,813,826	27 45
Other cattle.....	612,296,634	20 92
Sheep	92,721,133	2 46
Swine	174,351,409	4 39
Aggregate	\$1,891,577,471	.....

In considering the location and value of farm animals, for largest and smallest number in a state, and highest and lowest valuation, we find it to be as follows on January 1, 1898:
State in which occurred the

January 1, 1898.	Largest Number.	Smallest Number.	Highest Priced.	Lowest Priced.
Horses	Texas 1,148,500	R. I. 10,230	R. I. \$76 54	Nevada \$12 82
Mules	Texas 265,349	Montana 915	N. J. \$80 74	Nevada \$21 91
Milch cows	New York 1,402,164	Wyoming 17,960	N. J. \$36 10	Alabama \$12 50
Other cattle.....	Texas 4,823,295	R. I. 10,676	R. I. \$30 18	Alabama \$7 02
Sheep	Montana 3,247,641	R. I. 10,769	R. I. \$4 04	Alabama \$1 28
Swine.....	Iowa 3,625,831	Nevada 11,349	Conn. \$9 83	Florida \$2 13

On January 1, 1897, the farm animals of the United States had a valuation of \$1,655,414,612.

Few people realize what this enormous sum means. It means that the farm animals of the United States that year had a greater value by almost twenty million dollars than of our staple crops, as shown in this table of valuation:

Corn valued at.....	\$521,072,952
Wheat valued at.....	428,547,121
Hay valued at.....	401,390,728
Oats valued at.....	147,974,619
Potatoes valued at.....	89,643,059
Barley valued at.....	25,142,139
Tobacco valued at.....	23,273,209
Rye valued at.....	12,239,647
Buckwheat valued at.....	6,319,188
Total.....	\$1,635,602,762

If now we add to the value of our farm animals the value of our milk, butter and cheese, we will have these figures increased to over two billion dollars. In 1895 there was produced in the United States \$275,000,000 worth of butter, \$22,400,000 worth of cheese, and \$157,500,000 worth of milk. If now we add to this the value of the wool and poultry interests, we have a sum really beyond human conception.

Referring to the 1897 poultry statistics, a recent writer says: (*Farmers' Voice*, April 8, 1898.) "There are in this country today, in round numbers, 375,000,000 chickens and 40,000,000 other fowls, such as ducks, geese and turkeys. During 1897 the egg crop alone brought \$165,000,000. Poultry sold as meat—as broilers, boilers and bakers—brought \$125,000,000 more, making the total hen crop at a conservative rate, \$290,000,000.

"The hens of America last year packed inside the shells of their eggs, in round numbers, 650,000 tons of water. This is enough to fill a canal one mile long, 20 feet deep and 300 feet wide. The shells to hold this water contained 110,000 tons of lime."

SOMETHING OF BREED EVOLUTION.

The highly organized and developed domestic animal of today in certain respects is quite a different creature from his progenitors of a century ago. So sharply has the process of selection, breeding and feeding been followed, that it has resulted in the creation of individuals and types, which even a dozen years ago would not have been thought possible. This can be seen in the following illustrations as represented by widely different breeds.

A. Speed of the Horse.—It took 75 years to lower the trotting record $39\frac{3}{4}$ seconds. In 1810, "a horse from Boston" made a mile in $2:48\frac{1}{2}$. In 1859 Flora Temple became famous by trotting a mile in $2:19\frac{3}{4}$. In 1872 Goldsmith's Maid trotted a mile $2:16\frac{3}{4}$, and in 1885 Maud S. made a mile in $2:08\frac{3}{4}$.

From 1835, when Oneida Chief made a pacing record of 2:31, to 1897, when Star Pointer made a new world's record by pacing a mile in $1:59\frac{1}{4}$, is a period of 62 years, during which time the speed rate of horses was gradually increased. In 1891, Salvator, the runner, made the fastest mile in history, in $1.35\frac{1}{2}$. And what a speed is this for living flesh to carry. There are 5,280 feet in a mile, so that for every one of these 95 seconds, for every beat of man's pulse, Salvator covered 55.3 feet of ground. The shortest space of time noted by the turfman's watch is one-fourth of a second, yet in each of those 382 quarters of a second Salvator leaped 16.3 feet.

The breeding of speed in the horse had developed to such an extent that by November 1, 1892, there were 385 trotters and pacers that had records of 2:20 or better, while during the season of 1895 85 horses trotted or paced public miles in 2:10 or better.

B. Milking Character of Cows.—In quite another direction we find an evolution in the character of the domestic animal. When unrestrained by man, and native to the boundless prairie from generation to generation, the cow produces but enough milk to supply the limited wants of her offspring. Sub-

ject, however, to the artificial influences of man, she becomes a different creature. In 1818 a cow owned by Caleb Oakes, of Danvers, Mass., known in history as the "Oakes cow," an animal of unknown breeding, produced 484 $\frac{1}{4}$ pounds of butter. This created a sensation, and for years the Oakes cow was the wonder of the continent, and her record was not surpassed. Later, however, Eurotas became the butter queen, by producing 778 pounds one ounce of butter in a year. And soon Eurotas was retired in defeat, and other queens took her place, until today Pauline Paul is champion over all with 1,153 pounds 15 $\frac{3}{4}$ ounces of butter to her credit in 365 days. But this is not all. So wonderful has become this mammary development that today many cows are on record as having produced eight gallons of milk in a day, while Pieteitje 2d has to her credit nearly ten gallons a day for 365 days, or over 30,000 in a year (30,319 $\frac{1}{2}$ pounds).

C. Wool Production.—The domesticated sheep is no less plastic than the horse or the cow. The Merino in Vermont has always been famous, but its development in wool production has been a constant growth. Consul Jarvis said that his flock from 1811 to 1826 averaged four pounds of washed wool, his best stock rams shearing 6 $\frac{1}{2}$ pounds or equivalent to 9 $\frac{3}{4}$ pounds of unwashed fleece. Through the years history records a constant growth in wool producing tendencies on the part of the Vermont Merinos. So intensified has this quality become that in 1892, at a meeting of the Vermont Sheep Shearing Association, one two-year-old ram, owned by Byron Smith, of Addison, sheared 44 pounds three ounces, this being seven pounds 14 ounces heavier than any recorded in the Vermont register, and the heaviest fleece on record taken from a ram two years old.

What a contrast is this with the sheep of our forefathers, that clipped his four pounds of wool annually.

The race horse, the phenomenal milker, the bundle of living wool, these are but examples of the intensified development of generations of breeding, from which we of today may secure the full benefit if we but have the proper understanding.

BREED "BOOMS" IN HISTORY.

Not the least of the interesting phases of live stock history may be mentioned the period associated with some breeds, when people became nearly mad, and paid prices for animals of certain breeding many times more than their actual worth from any standpoint. In these times an uncertain something and the auctioneer's hypnotic influence caused men to lose their heads and crowd about the ring, and bid wilder than does the man on change when the pandemonium of the pit seems at its height. Time was when he of the golden hoof, the Merino, caused the blood of men to get on fire in the mad itch for Spanish sheep whose every fibre was worth its weight in gold. 'Twas but a few years ago, within the memory of a generation full of life and activity today, when people bowed down and worshipped the stately Shorthorn and scarcely knew no limit to their purses in bidding for Dukes and Duchesses. And lo! it is but yesterday, and a younger generation clusters about the ring and a new craze is on. This time that combination of known and unknown breeding, the Poland China, sets the brains of men in a whirl and the price of pork soars to a height beyond the ken of man.

Early in the present century a perfect craze for Spanish Merino sheep pervaded the country. Between April 1, 1810, and August 13, 1811, probably 26,000 sheep were shipped to America from Spain and Portugal. Public sales occurred on every hand, and the people lost control of their better judgment and bid higher and higher until phenomenal prices were reached. Hundreds of animals sold in 1810 near Boston at over \$125 each at auction, and the next March and April from \$500 to \$1,500 was given for a single sheep. At Brooklyn, N. Y., on October 5, 1810, 150 sheep sold for \$40,429.68, or at an average of \$269.52 per head. Not only did individuals buy one sheep at these high prices, but whole flocks were thus bought. James Caldwell, of Haddonfield, N. J., at one sale bought 190 sheep for his farm at a cost of \$28,500, or \$150 each. A perfect mania occurred for buying Merinos and the

farmers of the eastern states bought fast and furious. Then came the reaction. the price of wool fell, and Merino sheep were a drug on the market and could hardly be sold at all. The boom had collapsed.

One can hardly refrain from skipping over four score years to refer to the Lincoln sheep craze of today and now in progress. 'Twas but July 26 last, (1898), that the greatest sheep sale of history took place, when at Riby Grove, England, Henry Dudding sold 52 Lincoln rams at an average price of about \$435 each, one ram selling at \$5,250.

Since the days of Thomas Bates, the Shorthorn has been the most universally popular of all breeds of beef cattle. Good pure-bred Shorthorns have sold for snug sums for nearly three-fourths of a century, but there was a time when a Shorthorn craze struck the land, and boom prices reigned supreme. Prices of one, two and three thousand dollars were paid for animals over a half a century ago. After the civil war, however, public sales commenced and heavy prices began to rule. Various Dukes of Geneva sold at three and four thousand dollars each, and Duke of Thorndale 14th brought \$6,000. In 1870 Duchess 97th sold for \$12,000. On September 10, 1873, the climax was reached by the most sensational sale in history. At the little town in New York State, called New York Mills, Messrs. Walcott and Campbell held a public sale of Shorthorns. The herd contained animals of the most popular blood of the day and breeders were present at the sale from all over the United States and from abroad. At this sale 109 head of both sexes and various ages averaged \$3,500 each. Eighth Duchess of Geneva sold for \$40,600 and stands as the highest priced Shorthorn in history. Ten different animals ranged in prices between \$12,000 and \$40,600 each. In writing in the *Breeders' Gazette* (Jan. 15, 1896), of this famous sale, J. H. Pickrell, who attended with the view of buying, says: "Those who failed to get the cattle were the ones who made the money that day, and I was one of them." Some of these cows sold at such great prices afterwards failed to breed, and future events clearly demonstrated the utter folly of paying such phenomenal prices.

And now in this latter day, we note a boom of that pet of the central corn belt, the, shall I say? graceful Poland China. Within a short few months pigs of this breed have sold at prices that made pig men stare, and when \$5,200 was reached on Klever's Model, strong, clear-headed breeders thought it time to stop. And time it was. For such prices hurt rather than help in the long run. The sorrowful tale of nearly all of these high-priced breeds boom is, that the people ran mad over pedigrees and purchased these at the expense of individual merit, and bred pedigree against pedigree with a lack of judgment that counts heavily against the breed in future. Further, it is safe to say that when a breed reaches a point in its history where the great mass of intelligent stockmen can not afford to buy it, owing to the prohibitive prices, a collapse is sure to follow.

THE SOURCES OF OUR MEAT SUPPLY.

The great bulk of the meat supply of the country is produced west of the Mississippi river. On the first of January, 1898, of 48 states and territories, the nine of Iowa, Missouri, Kansas, Nebraska, Montana, Wyoming, Colorado, New Mexico and Texas, had 15,235,727 cattle other than milch cows of the 29,264,197 of the country, which had a valuation of \$338,345,778 of the total of \$612,296,634.

While it is true that these are great areas of land, when compared with any other equal number of states of the union, it is also true that here is the natural meat supply of the nation. The great, boundless west is here seen in all its magnificence, and the model grazing lands of the country are found here. In future this western country is destined to become more and more preéminent as a stock country. Hardly a score of years ago and the great prairies of the Trans-Mississippi region knew no lines of almost invisible wire, and the beasts of man were free to range as they listed under the watchful eye of the cow puncher. Herds of thousands fed on the sweet bunch grass, and grew in quality, weight and value. Twice each year oc-

curred a great "round-up," when the cattle were all branded and every man looked out for his own. This was a gala event, and was a time of mingled severe work and festivity. There was the sharp, sudden ride into the herd, the use of the rope, and the young thing was brought to the grass to receive the baptism of the branding rod. Then came the overland drive to the shipping point, perhaps covering hundreds of miles, while the herd grazed along the boundless highway.

Now comes another change, and the barbed wire fence began to play its part. The great open feed grounds are obstructed, the fences are cut and torn down, only to be replaced, finally to stay. Next comes the private possession of great ranches, often bought for a song, which were enclosed with wire, and so kept all within and protected from without.

With the fencing in of the range cattle has come a gradual contraction of the size of feeding grounds, and new methods in feeding and handling. In the great Southwest and in the Northwest there are yet ranches of wide extent, but these will no doubt follow in the wake of the other in breaking up.

There are many big feeding ranches worthy of our attention, but I desire to briefly refer to the work of the Standard Cattle Company, of Ames, Neb., as a superior example of the business side of feeding. This company first began business in Wyoming and Montana, but moved to Nebraska in order to get closer to the sources of food supply. Ten years ago they located on a naked prairie in Nebraska. There is located here now a small town, with school house, stores, elevator, mills, etc. There is a feed barn, where in September, 1897, 3,000 head of steers were fed under one roof, while out of doors 5,000 more were fed. They were feeding that year 11,000 head of steers. Quoting from Richard Gibson, to whom I am indebted for much of this information, the barn is an immense structure, containing 121,056 square feet of ground space. It is divided into 16 sections, each holding 188 head. Thirteen men run this department. In September, 1897, 2,917 cattle were on feed, and they were consuming daily 33,787 pounds of corn meal, 6,756 pounds bran, 4,500 pounds cotton seed cake, 23,050 pounds hay, and 10,060 pounds corn stover. The feeding arrangement is very complete; grain and cut feed is mixed and distributed from trains, the grain being weighed on each car. The grain consumed was seven pounds per day less than the outside cattle were getting. They are watered twice a day and the manure channel flushed once.

This great estate consists of 5,000 owned and 2,200 rented acres, on which was produced in 1897, 111,932 bushels of corn at a cost of 16 cents per bushel.

The manager of this establishment is an eastern man, a graduate of Harvard, and who from the beginning has managed the place. He has a keen business sense and knows just what he is doing, just what and how much the cattle are eating, and the gains they make. A system of book-keeping is followed, and each year the company publishes a statement of the product of the fields and the cost of growing the crop. This place is managed with all the intelligence and shrewdness of a mercantile house.

At Fremont, Neb., and about Fort Collins, Colo., are celebrated feeding yards, where many thousand cattle and sheep are fed. Some 18,000 sheep can be fed at Fremont in sheds and feed lots. At one time, in 1897, Noble and Bragg had 14,000 sheep in these yards. Mr. W. E. Lee, the same year fed 6,000 head, while Turner Bros. at one time had 11,500.

"To show the big scale upon which some of the operations are carried on," Richard Gibson writes: "I met with Mr. Rankin, of Missouri. He grew over 800,000 bushels of corn last year, is feeding 13,000 head of steers and 18,000 to 20,000 head of swine. The Standard Cattle Company is going out of breeding in Wyoming. This year they are feeding 11,000 head, 3,000 of which are under one roof. Another gentleman with whom I am acquainted is feeding 297,000 sheep. He has four feeding yards in Nebraska and four in Kansas."

These are some of the important sources of our meat supply, and they illustrate the large possibilities of the business of feeding live stock, as compared with the smaller plants.

THE STOCK YARDS AND PACKING HOUSES.

Chicago is the great meat market of the world, and here within the corporate limits of the city of Chicago we find the most extensive stock yards and the greatest packing houses in existence. Over 400 acres of land are owned by the Union Stock Yards Company. Twenty different railways enter these yards, and here bring in hour after hour long freight train loads of stock. Here we find about 20 planked acres for horses, 50 for hogs, 5 for sheep and some 200 for cattle.

There are about 4,500 pens in all, which are divided into divisions A, B, C, etc., and these into blocks, each pen being numbered. There are about 45 miles of streets and alleys, and the yards have a capacity of some 75,000 cattle, 300,000 hogs, 50,000 sheep and 5,000 horses. The Stock Yards Company owns 150 miles of railway, and 20 switch locomotives. Animals can be unloaded from 500 chutes. Each railway has its own platform, and the whole train can be emptied in the same time it would ordinarily take to unload one car. In connection with the main entrance to the yards is a brick exchange building, where are located the offices of the Stock Yards Company, the National Live Stock Bank, and about 140 commission firms. Business hours are from 7 a. m. to 2 p. m., and during this time hundreds of thousands of dollars change hands each day in the yards. All transactions are for cash.

At present 38,000 persons are employed in or about the yards in different occupations.

The immensity of this business may be shown with a very few striking figures. The present yards at Halstead and Fortieth streets were located in 1865. Since then the business has steadily grown.

The following figures show the relative growth in the receipts of stock at the yards by ten year periods.

	1866.	1876.	1886.	1896.
Cattle.....	393,007	1,096,745	1,963,960	2,600,746
Hogs.....	961,746	4,190,006	6,718,761	7,659,472
Sheep.....	207,987	373,095	1,008,750	3,590,655
Horses.....	1,553	8,159	27,599	106,978

Up to the end of 1896, during 31 years, there was received into these yards, 51,815,139 head of cattle, 160,438,972 hogs, 33,670,776 sheep and 1,094,291 horses, while the total valuation of this stock, including calves not above noted, is placed at \$4,567,278,166.

In 1892, 3,571,796 cattle were delivered into the yards, the greatest number for one year, and in September of that year 385,466 head were brought in. The daily record for cattle is for April 25, 1892, when 32,677 were shipped in. This would require, if estimate 20 to car, 1,634 cars. These cars would extend 10½ miles in line, allowing 34 feet to each car.

This live stock is brought to the yards, where it is unloaded and placed in pens. Feed is placed in the pen and roundly charged for by the Stock Yards Company. (\$1.50 per hundred for timothy hay, \$1 for prairie hay, \$1 per bushel for corn.)

There are about 300 cattle salesmen in the yards, and the heaviest buyers are Armour & Co., Swift & Co., Nelson Morris & Co., and the Hammond Co.

After the stock is unloaded it is driven to such a point in the yards as may be necessary, through alleys which may be closed with gates at almost any point desirable, and frequently overhead by means of viaducts. At a dozen different points in the yards are scales registering up to 100,000 pounds, where stock must be weighed. The cattle are usually driven from the pens to the slaughter houses by means of viaducts.

For years a strawberry roan steer, "Phil" by name, decoyed the new arrivals to their doom. "He would meet each lot as they neared the slaughter house and promptly and politely place himself in the lead of the procession, in

order to show the way to his confiding fellows. When they reached the chute leading into the abattoir, "Phil" would slyly step aside into a nook provided for him, and the unsuspecting charges would rush wildly on."

The cattle enter the slaughter house through a narrow chute leading into the "knock out" pens, which consist of a long room, narrow enough to hold two cattle abreast. When two steers reach the end of the room, a wooden partition is let down behind them, and in front of the pair back of them, and in this way all through. From four to ten pens are thus used. Knockers or stunners stand overhead and strike the animal deadly blows on the head, when they drop, stunned to the floor. One side of the stall is then raised, and the floor tilts by mechanical action, and the animal rolls out on the shackling platform. Here a man places a chain about the hind legs and hooks it onto a chain suspended from a traveling pulley. Machinery then hoists the cattle until the head clears the floor by about three feet, and carries them along, suspended from an overhead track, until they reach the sticker. Here a man cuts their throats, doing about 425 an hour. From then on most of the time is a journey of dismemberment for the carcass, which is passed from man to man, mainly by the overhead track, each person having a specific work to do with the carcass or entrails, until the cooler is reached. Everything is saved.

William Gordon Jordan in writing about the wonders of the world's waste in the Ladies' Home Journal, says, among other things: "Not many years ago when an ox was slaughtered, 40 per cent of the animal was wasted; at the present time nothing is lost but its dying breath." As but one-third of the weight of the animal consists of products that can be eaten, the question of utilizing the waste is a serious one. The blood is used in refining sugar, and in sizing paper, or manufactured into door knobs and buttons. The hide goes to the tanner; horns and hoofs are transformed into combs and buttons; thigh bones worth eighty dollars per ton, are cut into handles for clothes brushes; fore leg bones sell for thirty dollars per ton for collar buttons, parasol handles, and jewelry; the water in which bones are boiled is reduced to glue; the dust from sawing the bones is food for cattle and poultry; the smallest bones are made into boneblack. Each foot yields a quarter of a pint of neat's foot oil; the tail goes to the "soup" while the brush of hair at the end of the tail is sold to the mattress maker. The choicer parts of the fat make the basis of butterine; the intestines are used for sausage castings or bought by gold beaters. The undigested food in the stomach, which formerly cost the packers of Chicago thirty thousand dollars a year to remove and destroy, is now made into paper. These are but a few of the products of abattoirs. Scraps unfit for any other use find welcome in the glue pot, or they do missionary work for the farmers by acting as fertilizers."

In connection with each packing house is a great cooler or refrigerator, in which train loads of meat can be placed. In seven to eight minutes after being knocked in the head the carcass hangs in the cooler. A visitor to this place will find long rows of halves of beeves, and pigs and sheep, hanging from the hooks, all skinned, cleaned of entrails, washed and cleaned, ready for cutting into shipping and smaller pieces. Everything is done with great neatness, and plenty of water is used at all times to keep the floor below the carcasses clean while dressing them.

The swine go through a somewhat different process from the cattle. These are driven into the slaughter pens and run beneath hoisting wheels ten feet in diameter, operated by steam power. In the pen a shackler puts a chain about the hind leg of a hog and hooks him to one of the six chains hanging from the rim of the hoisting wheel. The hog is hauled up and descends the wheel on the other side, when the chain about his leg catches on a "sticking bar," which act liberates him from the wheel and slides him into the sticking pen. The pigs are passed on to a man who with a knife sticks about ten a minute. From the sticker they pass on to the scalding tub, into which they are dropped free of the shackles. The bristles on the ham, shoulders and back are removed by hand, after which the carcass is carried up through an automatic hog scraping machine. After scraping the pig is beheaded, following which comes the cleaning of entrails, general dressing and placing in the cooler, where it is later inspected.

The swine house at the stock yards cost \$500,000, is two stories high, can accommodate 200,000 pigs, and is the finest thing of its kind in the world. Immense numbers of pigs are received here. On February 11, 1895, 74,551 head were shipped in.

In the sheep pens boys fasten a chain to the hind legs of two sheep, which is attached to a triangular link and hooked into a hoisting chain, which is raised and lowered by electricity. The hoister transfers the sheep to a traveling pulley on a slightly inclined track, down which they run to the sticker, who cuts the throats of from 500 to 650 per hour. The sheep pass beyond the sticker to others, who through regular processes, take off the skin, head and remove the entrails, and do the other work necessary before placing the carcass in the cooler. In the sheep house they have what is called an operating ring, which is a line of racks, on which the carcasses are hung while being dressed. Operators travel about the ring in regular order and complete the work of dressing, after which the carcass is placed in the cooler.

Two interesting sights are to be seen in these packing houses—the making of sausages and the pulling of wool. Gangs of men are busily engaged in this work, for the entrail coverings are saved for filling with sausage meat at the machine, while the wool is all removed from the hides, dried and salted, until ready for shipment.

No farmer or stockman visiting Chicago, Kansas City or Omaha should fail to visit at some time the stock yards and packing houses. Here much valuable information may be gleaned, and here only can one really comprehend the magnitude of our live stock interests from the business standpoint.

DISTRIBUTION OF MEAT.

As has already been seen, Chicago is the great receiving point, and it also is the great distributing point.

Officials representing the United States government, with watchful care inspect all live animals as unloaded into the yards, condemning where necessary, follow up the work of slaughter and seek for all cases of disease. At no other place in the world are such precautions taken to secure a healthy meat supply. Furthermore, this is done to prevent European governments finding just cause for refusing American meats. So watchful is this work that millions of examinations are made of meats by means of the microscope, so as to discover if possible the microscopic forms of disease. In 1897 government inspectors worked at 128 abattoirs and packing houses located in thirty-three cities.

In 1897 42,310,107 cattle, sheep, calves and hogs were inspected alive, of which 78,338 were rejected in stock yards and 13,866 condemned. Post mortem examinations were made of 26,580,689 carcasses, of which 70,121 were condemned. Meat inspection tags or some other mark of identification were affixed to 14,510,662 quarters and 863,248 pieces of beef, 5,161,927 carcasses of sheep, 231,879 of calves, 524,556 of hogs and 314,947 sacks and pieces of pork. Further than this 1,881,309 specimens of pork were inspected for trichinæ, representing 43,572,355 pounds exported. Of this, 13,325 samples were found infected. The cost of this pork inspection was \$111,669.30, or an average of one-fourth cent a pound.

These figures show in a striking manner how the government is seeking to secure a wholesome meat supply.

Of the millions of animals that go to the stock yards a very large per cent of them there end their careers in nearby slaughter houses. After the carcasses are suitably cooled they are ready for shipment. To illustrate how extensively this shipping work is carried on, it is only necessary to say that one buys Chicago fresh meats today all over America and in civilized countries abroad. Magnificent refrigerator cars, making up express trains loaded with meat, pass to the important salt waterports east, south and west. Each quarter of beef is nicely wrapped in white muslin and hung in the car ready for foreign market.

The great ocean freighters are built for this fresh meat trade, and can swallow many car loads in their capacious refrigerators in the bottom of the vessels. It was my pleasure to stand on the deck of the "Gorgic" and see them stowing away great loads of meat in the refrigerator during the long night hours.

Who would guess the meat contents of that ocean mammoth? Surely but few. This is what I copied among other items from the freight books as part of the cargo: 3,000 quarters of beef, 100 rounds, 30 chucks, 37 pigs, 232 cases loins, 175 cases livers, 44 cases tails, 129 cases kidneys, 30 cases tongues, 40 cases butts, 10 cases jowl meat, 30 cases bologna sausage, 2 cases boiled hams. These were all in the refrigerators, and yet this was not all. Between the decks in comfortable repose were 850 fine export steers, over 1,300 sheep and 66 horses.

Between October 2 and 8 there sailed from United States and Canadian ports 15 steamships, carrying from American shores thousands of live cattle, sheep and horses to London, Liverpool, Glasgow and Hull. In additions to the live stock were thousands of pounds of dressed meat.

The fact that in 1897 we exported over \$188,000,000 worth of meat and meat products is enough to show the importance of our meat trade abroad. And it must be borne in mind that export stock represents a quality which brings the farmer of whatever part of the country he is in the very best sort of a price.

Visit your local market and you see Chicago canned and fresh meats on the shelves or counters of your grocer or butcher—no matter whether they live north, south, east or west. Sit down in a hotel in Havana, Cuba, and the meat served you was dressed out in Chicago. You open a cache made by Peary up next door to the pole and you find cans of Chicago meats. African explorers and European armies in uncivilized worlds carry Chicago canned meats in the commissary stores. Even Japan, way over in the orient, bought many thousand pounds of meat from American packers to feed the soldiers in the Chinese-Japanese war.

American farmers and stockmen have just cause for congratulation that the present administration of the Department of Agriculture is in the hands of a man (Hon. James Wilson) who thoroughly appreciates the importance of the markets abroad, and who is earnestly striving to improve them and thereby increase our export trade.

WHAT SOME BREEDERS ARE DOING.

Most, if not all, of the millions of farmers in the United States have in their possession farm animals of some kind. Many of these breeds are fed live stock on a more or less extensive scale, and their animals are numbered by the scores of hundreds. They, as a matter of course, see that sufficient feed is given the stock, that where necessary they should be sheltered or protected, and they go through a sort of a humdrum routine of breeding, feeding and selling, with no higher aims than those of the masses of whom they are a part. They understand neither the principles of breeding or feeding, and what is more, they do not seem to care to. They are sufficient unto themselves unless hog cholera, anthrax or some other dreaded disease begins a harvest in their midst.

There are, however, here and there in this fair land of ours, men engaged in stock farming who pursue the business with all the intelligence of the merchant of the town, who understand, or seek to understand, the science of breeding and feeding, and who practice with science so far as their light will allow them, who produce an article that they always find a market demand for, and who in many cases keep books and know something of the debit and credit side of the ledger. Fine studs, herds and flocks are not rare, neither are they common, but a combination of model stock farm and systematized business is unfortunately all too rare. There are farms here and there, owned by sharp city business men, who require their managers to keep books and make a proper business accounting from time to time. Such people,

while frequently ridiculed, none the less set a commendable example for their fellows in more ways than one, and often it turns out with them that "he who laughs last laughs best."

It is an inspiration for an ambitious young man to visit a great and successful stock farm and see the methods there employed, and he would be a dullard indeed who could not carry away with him valuable fruits from such a visit.

Thirty-five miles west from Chicago, on beautiful prairies of Illinois, lies the little village of Wayne. As one approaches it from Chicago he will see a half mile or more west of the station a large group of farm buildings of some considerable pretensions; opposite these buildings, on a slight elevation, stands a fine mansion, fit for any city boulevard. Here is "Oaklawn," the beautiful farm and home of Mark W. Dunham, the best known breeder and handler of Percheron and French Coach horses in America, and, rumor says, in the world. One is fully justified in stopping here and visiting this farm and seeing the buildings and horses, and noting something of the scope of the business.

Between fifteen and twenty buildings are grouped together, ranging in size from the small blacksmith shop, where the feet of the horses are looked after and general repairs made, to the great show barn of one room 300 by 40 feet. In fact, there are forty buildings all told on the farm. The main barns, owing to their size and character, are joined together, or nearly so, as they are, present an imposing appearance. In addition to the show barn, barn "1" is 101x51 feet; barn "3," 161x16 $\frac{1}{2}$ feet; barn "5," 161x62 $\frac{1}{2}$ feet, and barn "6," 190x50 feet, all of which are of dignified exterior, while barns 8, 9 and 10, of less pretensions than the others, are from 152 to 242 $\frac{1}{2}$ feet in length. There is also an office, residence building and a number of tenement houses. Splendid box stall accommodations are found in the buildings, and on the farm is stall capacity for some 700 horses, with free water in tanks in many of the stalls. There are a number of small barns on the farm which are so located that four good sized feed lots corner on them. The barns are divided into eight compartments, each of which has special feed and water arrangements, with a door opening into the lot. These lots and buildings are used for brood mares. Another interesting form of building is a small barn with open shed, enclosed by a high board fence yard, which admits of some exercise. One side of the barn has a series of narrow stalls, just wide enough for one horse, with manger and hay rack in the end. The horses are given free range in the yard, which has a broken stone covering, and can seek cover under the shed or may feed unmolested in the stall without being disturbed by the other mares. The drinking trough is placed in the end of such a stall so that the horses may drink unmolested. This arrangement is used during the winter for brood mares. The open shed promotes hardiness, the solid covering of the yard favors a good foot development, while the stall construction enables each mare to secure all needed nourishment without disturbance by the stronger individuals.

The home farm comprises some 1,700 acres, about half of which is in grass and half in cultivation. There are about 400 acres of corn, the stalks of which are shredded and fed. The place carries about 500 pure bred horses, which at the time of my visit were nearly evenly divided as to sex. About 100 colts per year are raised, and some mares are sent to the farm for breeding that do not belong to the proprietor.

During the busy season about 60 men are employed, while in winter about half that number is kept. In addition to regular hostlers and farm hands, there is a foreman for the farm and one also for the horses, a general caretaker, and a bookkeeper and stenographer or clerk. Books are kept and an inventory is taken twice a year of the stock, crops, etc.

Oaklawn is well equipped with all the necessary appurtenances of a great farm. Pumps, wind-mills and tanks go towards making a water system. A plant by itself is used for cutting feed, grinding grain, etc., while conveniently by it is the smithy. Standard farm tools are kept in their proper places, under shelter, and a general air of system and neatness pervades the place.

When one asks, from whence come the customers to such place, I will say that I found two on my arrival there, one from Texas and the other from Washington state, each representing great farm interests. Horses from Oaklawn have been sold to go all over America, and at prices that would surprise the average man. This year two sales comprising sixteen head have been made, which amounted to \$26,900, all told. Some years \$500,000 worth of horses have been sold from off this great farm.

In closing my reference to Oaklawn I can not refrain from quoting the words of Mr. Dunham relative to the record accomplished on this place.* "For more than twenty years, Oaklawn has been recognized as one of the potent factors in American horse breeding. The magnitude of its importations, the extent of its breeding operations, the individual excellence that it has sustained, the fight is made for high standards and well established blood lines, and finally the surpassing quality of its home bred product, has made for Oaklawn the reputation it enjoys wherever high class carriage and draft horses are being produced. Its record is without parallel. Nearly 5,000 stallions and mares, both imported and home-bred, have found a home in its stables. About 200 of these have been prize winners at one or the other of the last five universal expositions of the world. From Paris, in 1889, fourteen gold medals fell to Oaklawn. Nine of these fourteen gold medals were awarded to French Coach stallions and mares of different ages as a recognition of the highest distinction, being placed first in their classes and first over all carriage breeds of the world, England, Scotland, Russia, Germany, Spain, Algiers, India and France, all being represented. In the breeds of carriage horses, never before was there such competition. Ninety-six were entered in the two-year stallion class, 190 in the three-year-old class, and 145 mares were shown.

If more evidence is wanted to emphasize the fact that Oaklawn possesses the finest specimens of carriage horses that can be produced in any country of any breed, or there is any question as to our ability to produce upon our own soil the equal of the best horses bred abroad, it may be found in the record of Oaklawn's winning at the World's Columbian Exposition, 1893, 27 first prize winners of this breed having been foaled and raised at Oaklawn, and 23 other prize winners by it imported, a total of 50 first prize winners at this great World's Columbian Exposition, the exhibit of a single farm—a record never before approached. When it is known that 25 of the number were got by two stallions (Indre and Perfection) the record assumes wonderful significance to the breeder of carriage horses.

Those who have ever had the pleasure of driving through the country about Lexington, Ky., will remember that here is seen from time to time horse farms with pretentious buildings and broad acres, about which is often clustered much that is celebrated in speed horse history in America. Among these farms may be mentioned that of Milton Young, "McGrathiana," perhaps as celebrated a breeding place of running horses as America possesses. Here we find substantial brick buildings, providing the best of stabling accommodations for both mares and stallions, while numerous small fields give good pasture and exercise for mares and colts during their seasons of the year. McGrathiana is a great breeding place, where the most intelligent methods of breeding are followed out. Here are kept the great running stallions Hanover and Lamplighter, both most beautiful specimens of the horse race. Hanover is used simply for home service, and Mr. Young refused a \$1,000 service fee from a number of gentlemen. On this farm they have 300 mares, 100 sucklings and stallions.

Oaklawn and McGrathiana represent the highest types in America of breeding and methods. It is not necessary that every young man should aspire to possess such breeding farms as these, but every man should aspire to pursue just as rational and intelligent methods in his work, as a stockman, as is followed out by Dunham and Young. Every bit as good, if not better, work, so far as it goes, is possible on a 40-acre farm as is possible on the 1,700 acres of Mr. Dunham.

*Annual catalogue for 1898.

Whether as breeders or feeders, we should aim and produce the very best animals of their class in the most economical manner possible. If we study our business as we should, most of us will find ourselves feeding more or less unprofitable, inferior stock. The pruning knife should be used more vigorously. High standards should be set, and whether as feeders or breeders, we should aim to establish a reputation for the United States of producing only a high grade of feeding or breeding stock. In no way can we better serve our own business interests, as well as that of the country, as by breeding only the best. And it is but appropriate to close this subject by saying that never in the history of this country has there been a better opportunity or more inducements for the progressive breeder and feeder than exists today. (Applause.)

Hon. A. J. Lovejoy of Roscoe, Ill., then read a paper on "The Feeding and Breeding of Swine," as follows:

SWINE BREEDING AND FEEDING.

Ever since the earliest recollection of man, the growing and feeding of hogs on the farm has occupied the attention, to a greater or less extent, of the general farmer. In our earlier days but a few were grown on the average farm, and these were usually of uncertain origin as to breed. They seemed to be part scrub and the rest just hog. They were confined to a small enclosure or close pen during their entire existence; fed on the various refuse of the kitchen, and, at the age of about two years, were finished up on corn, and during the early "cold snap" of winter were slaughtered adjoining the pen where their lives were spent, and strung up on a pole to "cool out." Then what was not wanted for home consumption in the farmer's family was loaded on the wagon and hauled to market, which in this country meant either Galena or Chicago, and there brought the magnificent sum of 2 to 2½ cents per pound, dressed weight. We who live in the present day and generation often think we have hard times, but little do we know about real, genuine hard times, such as our fathers who settled the broad prairies of Illinois in the early days, had to pass through.

I have at home the old coffee mill that my father used the first years of his life in Illinois in 1837, in which he had to grind corn to get meal to make corn bread. There were no custom mills and no wheat flour. This was but one of the many hardships of those days, so let us say no more of hard times.

The hog has kept pace with the march of civilization in all countries, and has without doubt been a source of more clear profit to the American farmer than any other class of live stock kept on the farm. There may be instances where the dairy cow has possibly proven more profitable, but this was not by the general farmer, but by a specialist, or an expert dairyman, which should not be here considered, for I am talking more of the general or average farmer. If I were not, I might cite you to specialists in the breeding of pure-bred herds of swine, who by hard work, close attention and strict business principles, have built up a successful and profitable business that possibly might make a dairy cow take a back seat.

What kind of hogs should a farmer breed to make the most money? The breed should be any of the well known leading ones that happen to strike his fancy. They are all good when properly handled. There is just now a great "howl" going the rounds of the papers about "bacon hogs;" some even going so far as to recommend the original Razorback and the Tamworth, which are own cousins to the "Razorback." It seems to me simply ridiculous to consider this question of changing breeds entirely to produce fine bacon and hams. Better by far change our system of breeding and feeding. Instead of breeding year after year from immature animals and feeding nothing but corn, corn—change our methods, breed mature animals. When you find you have a sow that is a good mother, and produces large, even litters, keep her as long as she lives. If she ever has the cholera she will be much more apt to survive than a young sow, and once over it, she is worth her weight in gold, for she will never have it again. We have such a sow now, in our herd of Berkshires, that is in her thirteenth year. This is pretty old, but I copied a clipping which knocks us clear out. It is as follows:

"A sow forty-three years old, belonging to Taylor Brothers, Lynchburg, Tenn., died recently. She had been in the Taylor family all these years. She was of the big-boned Berkshire breed, was cholera-proof, and had not been sick for over a quarter of a century. She had raised 800 pigs, from which money enough had been realized to buy a good farm. She was buried on the farm and a stone was marked and placed on her grave." So much for using mature animals. They do no doubt produce stronger pigs, more of them and less liable to disease.

How can the Illinois farmer produce a better quality of bacon and hams? He can do so by selection of his breeding animals. Select the longer, leaner type. Then feed little, if any, corn, using the other grains and grasses of the farm, with the by-products of the mills and dairy. But can he afford to do this? No; not until our Chicago packers will discriminate in price and pay more for young hogs fed in this manner, than for those plump corn-fed hogs. The farmers of this State, at least those who make a business of feeding for the open market, will make more money in producing a 200 to 250-pound hog, farrowed in March or April and pushed till September or October, than in any other way. For at the present prices of corn, oats and rye, combined with the above by-products of the mill and dairy, there will be a good profit in feeding hogs. The day has passed when Illinois farmers can market the raw products of their farms. The grains and grasses must be condensed into finished product, such as pork, beef, mutton, wool and the dairy products, and how best to condense these brings us to the question of feeds and feeding. On this depends very much our success or failure, either as breeders of pure-bred stock for the trade, or as feeders of swine for the market. A strictly first-class feeder must be born with the qualifications in him. If he is not, he can not be made such and can not successfully feed any kind of stock, much less swine, for it is one thing to "sling" out corn to hogs and another to feed them as they should be for the purpose for which they are intended, and here comes the question of feeds.

We will now suppose that you are feeding your brood sows that have been bred for their spring litters, and want to have them bring forth good, strong litters of even pigs, that are ready to hustle for their dinner one minute after they are farrowed. If so, do not stuff your sows with corn all winter. If you do, your expectations will not be realized. You may ask, why not? But for the information of any young breeders or beginners, I will say that the exclusive feeding of corn to brood sows produces nothing but fat. She should have feed that will grow bone, muscle, hair, etc. This needs much besides an all-corn ration, for while a litter of pigs from a sow fed in this manner would have hair and some bone, they would have very little muscle or strength. To get the best results from your brood sows, I would use a mixture of different feeds. During the winter season, use oats ground in equal parts with corn, and to this add about one-half in bulk or even in weight of wheat middlings or bran, and to keep digestion good and everything in the best possible shape, add to this about 10 per cent of oil meal. Feed all mixed into a thick mush, about as thick as would pour nicely. If fed warm, so much the better. If I was feeding young pigs from fall litters, I would cook or scald the feed for them, not that I think the cooking would add much, if any, to the quality of the feed for producing growth, but for the reason that the pigs like it better and will eat more of it, and do not chill. Nothing looks so unthrifty to me as a lot of young pigs trying to eat slop when very cold or frozen. They eat a little, then run for the sleeping pen and pile up to get warm, and when feeding time comes again they come out of the nest humped up and steaming, ready to get chilled again. While if fed on warm feed, they will all eat their breakfast heartily and enjoy it, and will take some exercise before going back to their sleeping places. If I was feeding a bunch of last spring's pigs for the Chicago market and wanted only to get them to a proper weight to ship, I would feed them all the corn they would eat and some of the other feed mentioned besides, just for variety. We have found one of the best things we have ever used, in addition to the feeds mentioned, during the winter months or season when there is no grass, is a feed once every day of sugar beets, which is much relished by our hogs and pigs of all ages. After once getting a taste of them, the hogs will leave almost any feed to eat the sugar beets. I have said nothing about the feed-

ing of milk to pigs, but everyone knows that nothing can equal good milk for young and growing pigs, especially if added to the feeds mentioned. What I have said so far applies to the winter feeding of brood sows and pigs. If it was during the season of young clover or other grass, I would turn the brood sows out before farrowing on the clover and add a daily feed of corn.

If it was young pigs, I would do the same and continue the mixed feeds of thick mush, only instead of feeding it warm, would let it soak from one feed to another, but never to sour. Would also use the same feed for the sow after farrowing, commencing at farrowing time with no feed for twenty-four hours, but plenty of fresh water to drink, then using a little mixed feed, gradually increasing the amount as the pigs required more milk from their dam, until the sow was getting all she could eat. Good judgment should here be used by watching the young pigs, daily noting if all were thriving. If during early spring and the weather is cold, see that the little fellows take plenty of exercise, otherwise you would find them getting very fat and plump, especially in their fore parts. The neck and shoulders looking beautiful, you might think you had in these pigs a show litter, but if allowed to remain in their nest all the time without exercise, you would soon note a quick, jerky breathing, indicating a sure case of thumps, which, if well developed, can hardly be cured. But I should not wander from my subject.

There is so much to be said on the subject of feeds and feeding that one hardly knows where to stop. Regarding the feeder, he must be a man that would rather feed and watch the pigs eat than do anything else in the world, if he wants to excel. I have been looking for just such a man for years, but have never found him, so have to do my own feeding when at home, where I should be now. Some feeders will go the rounds and throw in the feed no matter whether there is a half trough full left from the last feed or not, then pass on, never waiting to see if every animal comes to his meal and eats it with a relish. The old saying is that it takes a lazy man to feed hogs. I ought to have made a good one, but I have yet much to learn regarding this matter. In conclusion, let me urge you all to look well to your feeds and feeding. The best mated pair in the world can not produce show pigs without proper feeding. How many have seen a well-bred pig of almost faultless form change hands, and from lack of good feed, properly given, soon look like a scrub, and again see a very ordinary pig change owners and fall into the hands of a master feeder, who would so improve him so as to astonish his breeder. There are many little matters connected with this problem, such as clean quarters, dry beds, pure drinking water, clean troughs, a little scratching or brushing, all of which go to help the general thrift of the herd. Use good, sound, sweet feed, as much of it produced on your farm as you can. Disinfect all yards and pens and troughs often, and you will make the breeding and feeding of well bred swine a success. (Applause).

The hour is not late, and if there is anyone present who would like to ask any questions we would like to hear from them now.

There were a number of questions asked, after which the Association adjourned to meet again at 9 o'clock Wednesday morning, November 16.

WEDNESDAY, NOVEMBER 16, 1898.

Association called to order at 9 a. m. by the President.

President: If you will now come to order we will listen to the reports of the various associations. The first on the list is the report of the Horse Breeders' Association.

Mr. George Williams, secretary, of Athens, then reported as follows:

SUPERVISORS' ROOM,
SANGAMON COUNTY COURT HOUSE,
SPRINGFIELD, ILL., November 16, 1899.

As the State Capitol was too crowded, the Board of Supervisors of Sangamon county kindly gave the use of their rooms to the Live Stock Breeders' Associations.

The Illinois Live Stock Breeders' Associations have set, by mutual consent, the election of officers of the allied associations for 8 a. m.

November 16, 1898, the Illinois Horse Breeders' Association met, with President John H. Kincaid in the chair.

Minutes of the preceding meeting were read and approved. The meeting then proceeded to the election of officers with the following result:

President, John H. Kincaid, Athens; Vice-President, S. Noble King, Bloomington; Secretary, George Williams, Athens; Treasurer, J. F. Smith, Auburn.

Executive committee—J. C. Ware, Champaign; A. F. Moore, Polo; F. W. Beardsley, Gibson City; John Landrigan, Albion, and D. Brinniman, Decatur.

It was moved and seconded that, on account of the small interest taken by Springfield and Sangamon county in these meetings, that it is the sense of this Association that propositions should be invited from outside cities for a place to hold our meeting in 1899, and that we consider we would do more good to the horse industry and the general live stock interests of the State by so doing. Carried.

The question of what we can do to increase the interest in these meetings was discussed, and all who are interested in the horse industry were invited to attend our next meeting, whether they joined our Association or not.

A vote of thanks was passed to Hon. Norman J. Coleman, of St. Louis, for preparing a paper on "Horse Breeding," and to Prof. John A. Craig, Iowa Agricultural College, for his address on "The Horse and His Market."

A motion to appoint a committee of three from each county to work up interest in the Association was passed.

After passing the usual resolution to meet at the same time and place as the Illinois Live Stock Breeders' Association in 1899, the meeting adjourned to listen to the papers before the general meeting.

GEORGE WILLIAMS, *Secretary*.

The President then stated that they would have the report from the Cattle Breeders' Association.

Mr. J. H. Pickrell, of Springfield, then read the report:

REPORT OF ILLINOIS CATTLE BREEDERS' ASSOCIATION.

SUPERVISORS' ROOM, COURT HOUSE,
SPRINGFIELD, ILL., November 16, 1899.

The members of this association met at 8 o'clock a. m., and were called to order by President A. P. Grout.

Reading of minutes of last meeting was, upon motion, dispensed with.

The election of officers was then taken up with the following result:

President, A. P. Grout, Winchester; Vice-President, J. P. Prather, Williamsville; Secretary, J. H. Pickrell, Springfield; Treasurer, Thomas Clark, Beecher.

Executive committee—Col. W. H. Fulkerson, Jerseyville; E. E. Chester, Champaign; S. Melven, Greenfield.

The *ex-officio* members of the executive committee consist of the president, vice-president, secretary and treasurer.

After considerable discussion relative to the best methods to create greater interests and secure larger attendance at the annual meetings it was voted to leave definite action with the executive committee of the Illinois Live Stock Breeders' Association.

After endorsing the resolutions as passed by the general association aforesaid, the meeting adjourned to take part in the general program.

A. P. GROUT, *President*.

J. H. PICKRELL, *Secretary*.

Col. Mills made a report for the Swine Breeders' Association:

REPORT OF ILLINOIS SWINE BREEDERS' ASSOCIATION.

COURT HOUSE,
SPRINGFIELD, ILL., November 16, 1898.

The stated annual meeting of the Illinois Swine Breeders' Association was called to order at 8:30 o'clock a. m. by President Fred H. Rankin.

After dispensing with reading of minutes of last meeting, by motion, the election of officers was taken up and resulted as follows:

President, Fred H. Rankin, Athens; Vice-President, C. E. Vigal, New City; Secretary, Charles F. Mills, Springfield; Treasurer, J. R. Fulkerson, Jerseyville.

Executive committee—Frank H. Whitney, Athens; A. P. Grout, Winchester; J. F. Smith, Auburn; W. C. Pearson, Vermilion.

After endorsing the resolutions as passed by the Illinois Live Stock Breeders' Association, the meeting adjourned to attend the meeting of aforesaid association.

FRED H. RANKIN, *President*.

CHAS. F. MILLS, *Secretary*.

The report of the Sheep Breeders' Association was then read by Mr. Springer, of Springfield, as follows:

The Illinois Sheep Breeders' Association met in the supervisors' room of the court house, Springfield, and elected the following officers: Jacob Zeigler, Clinton, President; R. Y. Kincaid, Athens, Vice-President; John G. Springer, Springfield, Secretary and Treasurer.

Executive Committee—James A. Stone, Bradfordton; Geo. Allen, Allerton; John Britton, Wapello; L. C. Graham, Cameron.

After endorsing the resolutions passed by the Live Stock Breeders' Association, the meeting adjourned.

JACOB ZEIGLER, *President*.

JOHN G. SPRINGER, *Secretary and Treasurer*.

Mr. Mills moved that the association now proceed with the election of officers of the Illinois Live Stock Association for the ensuing year.

It was seconded by Mr. F. H. Whitney, of Athens, and the motion prevailed.

Colonel Mills: I think it is the general opinion, at least I conferred with every gentleman here, and they are of the opinion that our present officers have rendered such satisfactory services during the past year, and as the Illinois Live Stock Association is more lively now and has more energy, that we can not do better than to continue our present officers, that is, the president and secretary. I would move that they be reelected by acclamation.

It was seconded by Mr. Pickrell.

Motion carried.

Mr. Mills: Further, as to the treasurer, it has been generally deemed best by all present, that we should get some live, active, live stock breeder in our meeting for treasurer, one who is in sympathy with us and will render us sufficient services. In order that we may secure the services of a very excellent man for this office, I would like to nominate S. N. King, of Bloomington.

Mr. King was elected by acclamation.

The question was asked as to where the next meeting would be held. The secretary stated that this was to be left to the decision of the executive committee, or that was the way he had it recorded in the minutes.

The following resolutions were introduced and unanimously adopted:

WHEREAS, The County Farmers' Institutes of Illinois provide an effective agency for the discussion of all matters pertaining to the breeding of improved stock in Illinois; therefore, be it

Resolved, That the secretary of this association request the officers of each county institute in Illinois to have a paper presented at the coming meetings on the great importance of increasing the interest in all sections of the State in the breeding of more and a better class of improved stock of the various breeds.

Resolved, That the executive committee of this association be requested to send a list of speakers who will present live stock topics at the various county institute meetings to be held this season.

WHEREAS, The State of Illinois has made no provision for the College of Agriculture in the way of buildings by legislative appropriation; and,

WHEREAS, Students in large and increasing numbers residing in Illinois are attending the agricultural colleges of other states, owing to the entire lack of buildings for the College of Agriculture at Champaign; therefore, be it

Resolved, That the Trustees of the University of Illinois be, and they are hereby, requested to immediately consider the great and pressing needs of the Illinois Agricultural College for a suitable building and equipment.

Resolved, That the General Assembly, at its coming session, be urged to make such provision for the Agricultural Department of the State University as will, in the immediate future, place it in the front rank of agricultural colleges, and make it an institution suited to the needs of our farmers and a credit to the greatest agricultural State in the Union.

Resolved, That a committee of three be appointed to present the above resolutions to the members of the General Assembly, and that said committee be instructed to coöperate in the work of securing the necessary appropriation for a suitable building and equipment for the State Agricultural College.

A. P. Grout, S. Noble King and C. F. Mills were appointed on this committee.

President: If we are to judge of the good work of the present officers by the attendance that we have, they will hardly deserve to be reelected. I feel like apologizing for the attendance that we have at this meeting, and especially to those gentlemen who have come from neighboring states to help us. It is quite a mortification to us that there is not a larger attendance. They must draw on their imagination to some extent. They must not judge of the good that may be done in their addresses by the number of people they see before them, because we intend to bring everything that is said here before the people of the State, and we hope that it will be seed sown on good ground.

Mr. Henry Wallace: I have been asked several times if I was not disappointed in the attendance. They seemed surprised when I said you can not get a good attendance in a city of this size. People in this town are interested in a great many other things, and they have the Odd Fellows' and other meetings here today, and there is always something in the capitol. The place for you to hold these meetings is the smallest town that has sufficient hotel accommodations, and get those people interested; send notes and letters to every prominent live stock man of the State and tell him to be there; you will have a meeting in two or three years that will fill the largest opera house or largest hotel in such a town. Travel all around, and every place you go you will get a large audience. Then follow on to the next, and so on, like an association on wheels.

Mr. King: The remark of Mr. Wallace, that of the association on wheels, has been suggested here. I, for my own part, do not know which would be best. I would like to hear some of the other gentlemen on both sides of that question give us some reason for their views besides that we have already heard. In regard to not holding these meetings in a large town like this. I would like to hear from some of the other gentlemen on that subject on either side.

Mr. Samuel Prather: It has been suggested in the report of the Cattle Breeder's Association that I present the matter of having sales at the time of these meetings, and the idea was talked over with the breeders of the Cattle Association as to having a horse sale, cattle, swine and sheep sale, and have, for instance, to illustrate all, at the fair grounds; the sale in the afternoon,

and adjourn to have the evening session held here. In that way you could get reduced rates from the railroads. In addition to that we discussed the question to some extent whether we could not raise \$500 for the fat stock exhibition. I think this can be done. I am sure that the hotels and other people of the town, if you present the proper case before them, will give something for the exhibition of fat stock shows. I make a motion that this association requests the executive committee to select a committee to consider this matter in view of holding sales, and if it can be arranged to give premiums and also take that into consideration.

Mr. E. E. Chester: I desire to second that motion. But let me say just one word in discussing the report of the Cattle Breeders' Association. This morning we thought possibly there was no other city that had so many advantages as Springfield. There are buildings at the fair grounds that may be heated up, they are heated up today. It occurred to me that to add interest to this Live Stock Association, it might be well to add a series of sales during that week. There is a number of stock men putting their stock on the ground, and while they are gathered together there with the view to purchasing or selling, there is plenty of time and interest in which we might consult with our fellows on these various systematic questions. I most heartily second that motion with the suggestion also that Springfield has just those advantages which no other city possesses.

This matter was referred to the executive committee.

Motion was seconded and carried.

President: We will now proceed with our program. The first will be an address on the "Feeding and Marketing of Sheep," by Hon. Jacob Zeigler, of Clinton, Illinois. Before reading the address, he said: "There has been a little misunderstanding in getting up a paper on the feeding of stock. As I understood, it was to be upon the care and feeding and value of sheep, and I so prepared. I am sorry to say that I have not so very much to give in the way of instruction. All I can give you is a little of my experience in raising sheep."

He then read his address, as follows:

CARE AND MANAGEMENT OF SHEEP.

The care and management of sheep is much like that of other stock; what is good for horse, cow and hog, is also good for sheep.

In sheep husbandry there is one thing that must be observed and not overlooked, and that is thrift. Thrift means health, gain in quality, quantity and productiveness, hence profit, and profit is what we are after. It should always be the object of a flock-master to keep his sheep in a thriving condition. The quality of the wool, as well as its quantity and the general productiveness of the flock, demand this system.

Now, the question is: What are the essentials to thrift? I will say good feed, water, shelter and close attention of the shepherd. It is the worst possible practice to allow the sheep to fall away in flesh as the grass fails in the autumn. The increasing wool conceals the shrinking carcass, much to the disappointment of the careless flock-master. Better confine them in the yard than allow them to ramble about in some field in search of food, which furnishes a little green feed, but too light to be of any real value.

For winter fodder there is nothing better than fine early cut clover, cut when in bloom and well cured. Hay from old meadows, consisting of a variety of grasses, is equally good. Sowed or thickly drilled corn, for fodder, cut and well shocked in good season, is also a splendid feed. Good corn stover is a good and cheap food. When fed in the yard on snow, frozen or dry ground, it makes a fine dry yard besides the feed. A feed of bright oats straw two or three times a week can be fed to a good advantage. It adds to the variety of feed of which sheep are so fond, besides the leaving of the straw and stocks makes a splendid yard and a good absorbent of the liquid manure; in fact, the only way in which this valuable manure can be saved.

Bright sheaf oats fed once or twice a week in racks is also a splendid feed. It answers for both grain and fodder, and saves the expense of threshing, which is quite an item. For thrift, clean water is very important to have in the yard. It is a mistaken idea that sheep do not need water. In August and September of 1894 I had 150 ewes with that many lambs in a pasture (and no other stock), and they drank a trough of water every day that held 210 gallons, nearly $1\frac{1}{2}$ gallons average per ewe and lamb. I find if sheep have free access to water they do not drink so much at a time but often, and drink as much on dry feed in winter as on grass in summer. They can, however, go longer and do better without water than other stock, but thrive much better with it.

Shelter is very necessary to thrift. It is the first necessity in providing for wintering sheep successfully in this latitude. Fine wool sheep will bear exposure better than any other kind of sheep. The open fleece of the large mutton breeds parts on the back when wet and admits the water, which completely drenches the animal, so that its abundant fleece is no longer a protection from cold. Economy in feeding also demands shelter, as not only less food is required, but is better preserved from waste. Water-soaked hay, or that which is in any way soiled, is always rejected. Sheep is the cleanest animal on the farm. It will not eat or drink that which is in any way soiled or out of a dirty trough unless forced to. (Hence mutton is the cleanest, sweetest and healthiest meat we can eat). Shelter, therefore, is not only healthful and grateful to sheep, but also profitable to its owner. It is not necessary to build expensive buildings for shelter. Upon sheds facing to the south or east, as location of ground may be, boarded up on the back and ends and roofed over with common lumber, with hay racks built against the back under the shed, make a good and cheap shed. Straw may be used for the roof and siding of a shed instead of lumber. It will be cheaper, but not lasting. For lambs, however, I prefer a closed house with large double doors on the east or south of the building, and left open except in storms or rainy weather, then shut them in, as they do not crowd themselves in shelter like old sheep, and they do better in a closed shed, however crowded, than in a roomy, stormy outdoors.

Lambs should have grain from the time they are ten weeks old till the following spring. A trough can be set with oats in it outside of the pasture fence, near the watering place, with opening in the fence for the lambs to get to it. They will then learn to eat by the time they are four months old, at which time they should be weaned; it is better for both mother and lamb. In weaning give them the best green pasture you have, with all the oats they can eat, and plenty of good water. If you have a corn field adjoining your pasture you will find it a good thing to open the fence and let them also have range in it. They will do no harm, and will eat many weeds and lower leaves of the corn. They should be kept in that way until they are put in winter quarters, then they should have from a half pint to a pint equally of shelled corn and oats per day, owing to the size and breed of the sheep, with all they can eat of good hay. In weaning lambs never take them from the mothers, but always take the mother from the lambs, and leave the lambs in the old pasture for a week at least before moving them to another, if necessary to move at all. A gentle old sheep should be left with the lambs for a leader; it makes them more quiet and gentle. In the spring, as soon as there is enough pasture, turn them out on grass for the summer. You have then a fine bunch of sheep whose fleece will more than pay for the keeping. They can now be handled like old sheep. There is nothing cheaper and better for sheep than grass, except it may be weeds, of which they eat and destroy many and convert them into good wool and mutton free of charge, but remember they do not thrive or pay on weeds alone.

Stockers will do well fed on good hay alone, but better on a variety, with a little grain in stormy weather. A daily ration of one pound of grain with straw stover of any kind of roughness, makes an excellent feed.

Economy often demands that kind of a change in a system of feeding to good advantage, to both sheep and owner. We often see good hay selling for \$10 per ton when good corn is selling from \$7 to \$9 per ton (or 20 to 25 cents), and oats from \$9 to \$12.50 per ton (or 15 to 20 cents); and the chem-

ists of our experimental stations tell us that the nutrition in a pound of corn, oats and hay is three to one in favor of the grain, and Dr. Alexander Speck Von Saxony says 4 per cent of the animal's live weight in good hay, fed under cover, is necessary per day for its sustenance and thrift; and it is a well known fact that 1 per cent of the animal's weight in corn or oats, with any kind of roughness that can not otherwise be sold, will take them through the winter in fine shape, and 1½ per cent will fatten them. See the difference in the price of feed.

For thrift keep them well tagged; feed and water at regular hours twice a day; let them have free access to salt. No other animals except small calves and pigs should be allowed in the yard with the sheep; they do well and do no harm, but the losses by the horns of steers and the heels of colts more than balance any supposed gain.

Sheep suffer from the hot sun, and should, therefore, be supplied with good shade in summer. You can never tame a sheep by catching it by its wool. The more it struggles the more you hurt it. Catch it under the throat or by the hind leg.

Keep none but the best of whatever breed you have; they will pay when poor ones will lose.

Mr. Henry Wallace: On the way down from Chicago to Springfield yesterday I kept a look-out, and found only one flock of sheep. What is the reason that the farmers of Illinois do not raise more sheep?

Mr. Jacob Zeigler: Nearly everybody can raise a steer, but I think it requires a little more attention and a little more patience and skill to raise sheep than any other kind of stock.

Prof. Thos. Shaw: I would like to ask whether you always feed your corn uncut or run it through a cutting-box, if you have tried both, and which is preferred?

Mr. Jacob Zeigler: No, I have never cut any.

Prof. Shaw: If this is the case, will you please tell us how you grow that corn?

Mr. Jacob Zeigler: It is grown principally the same as other corn.

President: If there are no more questions we will proceed with the program. The next will be an address on "Sheep Husbandry," by Professor Craig, of Ames, Iowa.

Professor Craig then gave his address, which was very interesting and very much appreciated by every one present. He illustrated his address with various pictures.

SHEEP—GOOD AND BAD.

By John A. Craig, Professor of Animal Husbandry, Iowa Agricultural College, Ames, Iowa.

It is a safe proposition to accept that every sheep has a fault, and it is equally true that there are none so bad but have some good qualities. In estimating the good and bad qualities of sheep it is then only a question of being able to see things as they really exist. It is particularly hard to do this in the case of sheep, because they can be trimmed and dressed with great success in hiding their deficiencies. Owing to this deception, it is practically impossible to form an opinion from what one sees. It is necessary to handle the sheep thoroughly, or in other words to see with the fingers. As to the differences that can be made in a sheep, the accompanying photographs will indicate the reformation that can be made in a sheep taken from the field and prepared for show. At the time the first photograph was taken the sheep was shown with a rough fleece and many natural deficiencies of form; after trimming this sheep the fleece showed smooth, the back straight and the outline perfect in every particular, yet the same deficiencies exist there as were shown in the first place. In trimming, the shepherd has his sheep stand on

a perfectly level floor, and after noting all the natural defects of form, he begins to mould the sheep towards his ideal. By trimming the wool short where the sheep is too high, and leaving it long where the form is too low, he makes the back seem perfectly straight and level in appearance. From this as a center line he works over the side, down the thigh, over the breast and then smoothes the neck and head. By trimming the wool in this way, especially if the fleece is fine, he can make the sheep have the appearance of being perfect in form, while removing the wool at shearing time would show that it is very deficient.

In handling the form of a sheep, it is best to keep the hand completely open, as in this way the straightness of the lines can be determined best and the wool will be disturbed least. To be thorough in examination this system should be followed: Beginning with the head, with the finger drop the lower lip of the sheep and notice the condition of the teeth; notice the covering of the head, the eyes and the ears; see that there is no appearance of horns in those that should be hornless; then pass to the neck, feeling with the hands the course of the neck—in that way determine the length of it, the thickness of it and the way it swells to meet the shoulder at the shoulder vein; then pass down to the brisket, putting one hand on the floor of the chest and the other at the top of the shoulder, and in this way form an idea as to the depth of the sheep through these parts; then pass to the shoulder, observe how it is covered with flesh and up to the top, also taking the girth, or the spring of the ribs of the sheep. From the top of the shoulder, using one hand, follow the line of the back to the end of the body. By carefully handling these parts the fleshiness of the sheep or the way the ribs are covered and the straightness of the back are determined, and at the same time the spring of the ribs is made apparent. The width of the loin should then be taken and the covering and the thickness of it should be noticed. The width at the hips should then be observed, and turning to one side and using the two hands the length from the hip to the end of the hindquarter should be made apparent between the two hands. Afterwards note the way the hindquarter is carried back, and the fullness of these parts should also be examined. Following down towards the leg, the development of the thigh on the outside requires examination, and then with the hand the quarters or the twist between the legs should be firmly felt.

To form a basis for estimating the good and bad qualities of sheep, it is best to first consider the carcass, and that from the butcher's point of view. The different parts of the lamb, from the butcher's standpoint, shows a wide variation. As shown in the illustration accompanying this, the neck has a value of only one cent per pound, the shoulder two cents and the shanks the same. The rib running from the point of the shoulder to the loin has a value of nine cents per pound and the same is true of the loin, while the leg of mutton or the "giggots," as they are sometimes called, have the highest value per pound of any other part, as they are quoted at ten cents. The breast, however, has the low value of two cents per pound in Chicago markets. From these facts it will be seen that the back and the development of the leg are the most important points to criticise in the form of the fat lamb.

In what has preceded, attention has been given particularly to the perfections, but there are many defects worthy of being mentioned that are characteristic of fat lambs. Very often the top of the shoulder is not covered sufficiently with flesh, letting the top of the blade come out too sharp and bare. This part, for at least the length of the hand, should be flat and well covered with flesh in a fattened sheep. The ribs should spring out from the body and all well covered with firm flesh. The backbone should not stand prominent at any point, as it does sometimes at various points along the back. Frequently it is grooved on account of the development of flesh along it, but it is better to be perfectly flat and smooth. The loin in some lambs rises and this is especially a bad defect when it is also bare of flesh. The hindquarters frequently shrink away toward the tail, head and down the thigh. This should not be so, as the hindquarter should continue straight and full. From the hip to hock the fat sheep should be especially strong. Not only should the leg be full and plump with muscle on the outside, but between the legs in the twist the flesh should run well toward the hock and

compel the hind legs to stand wide apart. Badly set hocks often interfere with the development of the hindquarter, and they also are as bad an eyesore as broken down pasterns.

After the form of the sheep has been carefully gone over, the quality should be noted. The cleanliness of the bone, the apparent strength of it, and the nature of the hair which covers the face and legs should be noted. These are important features in either breeding sheep or fat sheep. It is, perhaps, most valuable from the butcher's standpoint, because the waste is less from a sheep of good quality than it is from one that is inferior, but sheep of the best quality will not dress much over fifty per cent of their live weight.

It is fortunate that the feeders' type of a sheep is one that is likely to produce the best results for the butcher. This is shown in an experiment that I conducted several years ago with what may be called a good feeding type and a bad feeding type. The lot containing the twenty-five of the bad type gave an average weekly gain per head of 2.26 pounds, while the twelve others gave an average weekly gain of 3.60 pounds. Putting them in the feeding pens at the same price per pound and taking them out on advance of one, the one lot returned a profit of 60 cents a head and the other at a profit of \$1.13 per head, showing that one good lamb yielded just twice as much as a lamb of the bad type. The six photographs shown of these lambs indicate the differences that were strikingly apparent in these types.

In examining the fleece the chief points to consider are the quality, quantity and condition. The best way of arriving at an estimation of the nature of a fleece is to open it first just over the shoulder. It is in this region that the finest and best wool of the fleece is found. By using the hand in a flat position instead of sticking the fingers into the wool, the fleece may be parted in a nice way. After looking at the wool and skin in this region the thigh should be chosen for the next examination. This part usually grows the poorest and coarsest wool of the whole fleece. Then the covering of fleece on the belly is also noticed. By examining the fleece in these three parts a fair estimate of its qualities may be made.

According to the market classifications of wool, it is the length and strength of the fiber that has most to do with the prices that are paid for them. The wools according to their length and strength in the Chicago market, are divided into clothing, which is short, being about two inches, or it is weak; then there is the Delaine class, which is a fine wool from two to three inches long in fibre. The other class is the combing, which is a strong wool over three inches long. This classification, it will be seen, depends altogether on the length and strength of the wool. Considering first, clothing wool, shortness in the fibre is its leading characteristic. If the fibre of the fleece, however, is four inches long, it would be on its length classified as combing wool, but if that fibre has a weak spot in it where it readily breaks, it passes from the combing class into the clothing class and drops two or more cents per pound in price. The Delaine wools are fine wools that are not longer than three inches. They are used for making the finest kinds of cloth. The combing wool must, in the first place, be strong to stand the process of combing, and with that the greatest strength is desired.

In judging of the good and bad qualities in pure bred sheep in the breeding classes, the subject of breed type should receive careful consideration. While it has a bearing on the judging of all classes of pure bred stock, yet it is of double importance in the pure bred classes of sheep.

The type that has been characteristic of each breed has arisen from a variety of causes. In all instances the breeders' skill in selecting and mating has been a controlling factor, while other influences have more or less assisted. In some instances, the function of the animal or the work it is called upon to do has had a strong influence. This is evident in the instance of the running horse, the trotting horse and the dairy cow; where the form or the type has developed from the function. In other instances the environment has aided man in his work of selection, and this is notably true of sheep. The adaptability of sheep for different altitudes of land enables us to divide them into lowland breeds, upland or down breeds, and mountain breeds, and it is connected with the subject of breed type for the environment of such

lands develop the type that does the best upon them. The lowland breeds are large, square and strong framed, and heavy producers of wool and mutton; the down breeds are smaller, but rounder and more compact with fleece, frame and mutton of better quality. The mountain breeds must have more vigor and agility than those previously mentioned, to earn subsistence under rougher conditions, so that the possession of a rugged constitution, active disposition with strong limbs and muscles are of more importance than the other features that are characteristic of other types. Man seeks to fix the type that he has found characteristic of the breeds by elaborating scales of points representing the features of the types desired, and towards the production of these ideal types all breeders bend their energies.

The type of the breed having been decided upon by all the breeders, it should be the aim of the breeder and the judge to recognize it, for aside from an acknowledgment of the wishes of the breeders, it is a point of direct value to do so. When a breed has been uniformly bred to a type for a period of twenty years or so the type has become so fixed that it is uniformly transmitted. Two of the most powerful factors aiding the fixing of the type of a breed are the breeders seeking to produce the animal of ideal type as represented by the scale of points and the judges conforming to it in the show ring. The result is of value to the breeding interests, as it assists in making the breed prepotent or able to transmit its characteristics with a greater degree of certainty.

Another feature associated with the fixing of the breed type by the assistance of the breeder and the judge is the fact that it then becomes possible to select breeding stock from among the pure breeds with special reference to their adaptability for given environment. Knowing the environment that has assisted in producing a type of any breed of sheep and knowing that a certain type has become the fixed property of that breed and no other, it is possible to make an intelligent choice of a breed for any environment. It is this adaptability for different environments that has given us over twenty-five different breeds of sheep, and it is the possession of a certain type, which is called breed type, that gives each a place, it is consequently important that the breeder should try to retain the type and in this secure the coöperation of the judge.

Aside from the bred type which is outlined in the scales of points that are given in the records, the ram in type should show masculinity in many features. In those breeds that have horns, the latter should spring strong from the head and turn clear from the face. In all rams, the face should be broad between the eyes, somewhat short, with a Roman nose. The crest or scrag should be thick and rising and the neck full. A point deserving emphasis is the depth of the chest. The body should sink deep between the forelegs and the ribs back of the shoulder should be deep and round, making the girth large and the brisket prominent and wide—two features that are indicative of a strong constitution. A live fleece, that is, one that is springy and not dead to the touch, and especially a dense thick covering of belly wool, is also indicative of vigor of constitution. For the same reason in those breeds that are wooled about the head, the more complete and dense this covering is the better it is liked. The legs of the ram should be straight and strong and short. In movement the ram should be bold and active. This is often influenced by the condition. A ram should never be so heavy in flesh as to be useless for service, as is too often the case in the show ring. The flesh should be even and firm, and not gathered in masses or rolls at any part of the body. It is very apt to gather at the fore flank, leaving the back bare or raw. Excessive condition is likely to make the ram unwieldy in action, or result in broken down pasterns which usually render a ram useless for breeding purposes.

The ewe should be rather long in the face, with fine features. The neck should be slender and without any of the thickness noticeable in the ram. The body should be deep, round ribbed, and specially long, so as to provide room for the growing lamb. The type of the good milking one verges strongly toward that which is typical of the good dairy cow. The ewe that milkes well, and consequently rears early maturing lambs, tends toward the wedge shape, deep in the chest, large bodied and wide across the loins and

hips. The condition of the ewe should not be such as to impair her breeding qualities. Excessive fatness, as a rule, is in this way injurious. The flesh should be evenly distributed, and not gathered in bunches about the tail head, and it should be firm and not flabby.

As a result of our consideration of the good and bad qualities of sheep, there arises the more important problem of breeding to reproduce the former and to remove the latter. In studying the life histories of the eminent breeders, I fail to find mention of a single breeder of note who was not considered a good judge of stock in his day. They may each have followed a peculiar system of breeding, but the universal fact is that they all were well versed in the good and bad qualities of the animal they bred. While Bakewell, Collins, Bates, Booth, Cruickshank, Watson, Price and many others followed some method of breeding, yet I believe their success to be due in the largest measure to their judgment of the good and bad qualities of domestic animals. I have failed to find up to this day, that where success has been obtained by in and imbreeding, cross-breeding or any other form, but that there was a man behind the system who knew well the merits and demerits of the animals he was breeding. And further, knowing these, he made his selection to get the best blend. This is the basis of a method of breeding that arises from what has gone before. For want of a better term I have named it balanced breeding, and I believe that this method has the means of developing the good qualities, and at the same time lessening and removing the demerits of our domestic animals.

The strongest basis of support for it lies in the degree it has been fruitful in producing results. The present as well as the past records of breeding show that balanced breeding and the production of nicks have followed each other just as cause and effect. Modern instances of the results of balanced breeding applied to blood lines is in the success of the blend of Bates and Cruickshank cattle, Hambletonian and Mambrino Chief in trotters, Darnley and Prince of Wales in Clydesdales, Denmark and Fireaway in Hackneys, and so on through the various kinds of stock. The reason for the success in this seems to be in the fact that the good qualities of one strengthen the weak ones of the other. Cross-breeding has produced such wonderful results in some lines for the same reason, and I find that when in and imbreeding has been carried on with greatest success within the Mortoun and Murroy flocks, balanced breeding has always had first place. To follow balanced breeding in sheep would mean the selection of rams with the leading thought of removing the weakness of the flock. When one realizes the force of balanced breeding and acts on it in the selection of sires, it is wonderful what strides may be made toward perfection in a few years. With this sire we correct a deficiency of the fleece and yet retain the good qualities of form; with another we add a little more bone; another deepens the flesh on the valuable parts, and so on, each marking a new advance; while closer discrimination and riper judgment keeps disclosing new features to be attained in each additional effort. (Applause).

The President: We have with us today Mr. Vallency Fuller, of New York, who is the champion of the Jersey breed of cattle and who had charge of the dairy test at the World's Fair. We will be pleased to hear from him at this time.

Mr. Fuller then presented his paper, which appears in the appendix to this report.

AFTERNOON SESSION, 3 P. M.

The meeting was called to order by the President, A. P. Grout.

The first on the program was an address, "Cattle Feeding," by Mr. L. H. Kerrick, of Bloomington, Ill.

Mr. Kerrick: Gentlemen:—When I accepted the invitation to be here today I thought I would read a paper; possibly that would have been the best thing to do, but I believe I can talk better about cattle feeding than I can write about it. There is this about talking, we can talk along together as the interest seems to lead us, whereas a paper must go through as it is written.

The beef cattle business in Illinois is in a very ragged kind of shape at the present time. There have been great changes in this business in Illinois and other corn states the past few years. The truth of it is we have almost no native bred beef cattle, with this honorable exception, that a few gentlemen here and there, with capital and enterprise, have kept some of the good ones and saved the good seed for us.

Illinois farms are practically denuded of that splendid stock of beef cattle which was once seen on them. You know it was twelve or fifteen years ago; almost every farmer had some good Shorthorn cows; these furnished the family with milk and butter. The best milk cow I ever saw was a beautiful great red Shorthorn. I would rather have her now than any cow I ever had for milk. Besides furnishing the milk and butter for the family these cows raised some good calves every year to be fed on the farm or sold to a neighboring feeder. They were something to bring money and did bring it. When a train load or two of good beef cattle that are bred, raised and fed in your community go to market they bring you back an amount of money that counts.

It pays off debts, lifts mortgages, builds houses and barns, sends the young people to school and furnishes the home with comforts. We are not sending these out now. We don't have them to send. The money they once brought is not coming at all. Cheap corn brings no such money. We are going to miss that money until the business of breeding and feeding beef cattle is restored to something like what it used to be. We are going to miss it in other ways.

How are we to maintain the high price of these lands and the high rentals they are bringing? How are we going to maintain the fertility of these lands in which consists their great value? Raising corn and selling it in the market year by year will not do it. I see no way but to restore the business of beef cattle breeding and feeding.

There are some difficulties in the way, but they are not insurmountable. I do not believe it is possible to breed and feed beef cattle with profit on these high priced lands, following the old methods. The man on the very cheap land of our western ranges will knock us out again as he did before unless we find a better way, a quicker way and a more economical way of making beef here than the old.

We must raise better beef—higher priced beef than we used to raise. We must raise it in less time than we used to raise it. We must raise a whole lot more of it to the acre than we used to raise. To put it all in a single sentence, if beef cattle breeding and feeding is to be restored on these high priced lands of Illinois we must go to market in the shortest possible time with the best and highest priced beef and the most of it to the acre that it is possible to raise. This is the problem beef cattle men have to solve in Illinois. Can it be done? Can beef be raised and fed on these lands with profit? Yes. How can it be done? I have said old methods must be abandoned. The time for grassing cattle here, I mean by this the time when beef cattle can be allowed room and time in which to graze, all their gain is past. In the new method of producing beef in Illinois such terms as roughing, grassing, wintering and the like can have no place. The language of the new method will be feed, feed, feed, judiciously, but feed all the time from calfhood until your steer goes to the market a ripe beef.

First, we must breed cattle of the very highest and best beef type. I have been accustomed to allow my calves to run with their dams six or eight months, taking all the milk, seeing to it that the mothers have at all times plenty to eat, plenty of good, pure water, sufficient shelter from storms, gentle and human care.

We carefully teach our calves to eat before they are weaned. This is absolutely necessary if you are going to produce a high class beef in the shortest possible time. There must be no loss of condition or of flesh at weaning time. There need be none. Your calf can be brought on to feed so that he will hardly know or show in his condition when he is weaned.

We use ground feed, of course, for our calves, always furnishing a reasonable variety, ground oats, corn meal, a little oil meal and generally a little bran; not all of these at once, but always more than one of them at a time. This requires some care, certainly, but if you expect to raise beef with profit on high priced lands you must take the care.

Some men take calves off their dams and allow them to suck two or three times a day the first six or eight months. I have tried this way, but I do not like it as well as the other—allowing them to run with their dams.

My steers, which took first premium at the American Fat Stock Show in 1897, ran with their dams the first six or eight months. The two-year-old steers that I am feeding now were not allowed to run with their dams. I think they are not as good steers as the others, and I will hereafter allow my calves to run with their dams, unless I learn a better way.

During the first year I do not push my steers with all the feed they would take. There is some danger in it. There is danger of blackleg, especially where conditions favor the development of that malady. We feed, however, to make just as much gain as we can safely, not aiming to produce the largest amount of fat and gain as we would if it were not for this danger of which I have spoken. After the calves are a year or so old, feed them all they will eat. We always maintain a good variety in their feed. They get everything we can raise on the farm that is relished by cattle, and besides we generally, for part of the time at least, allow them a small ration of oil meal, sometimes bran when the article is cheap enough.

We feed it in the open fields. It saves a vast amount of work and expense hauling manure. These fields, after we have fed in them a while, we plow up and put in corn, and there's where you get your corn. You can hardly wear out a field, certainly not in any reasonable time, corning it. I mean one of the Illinois prairie fields on which cattle have been fed three or four years, augmenting its great natural fertility.

We provide well roofed sheds, enclosed on the north, east and west, for shelter. These shelters are open to the south, the cattle having free ingress and egress. There is nothing a steer appreciates so much as a little dry straw or other bedding to lie down on, and in very cold or otherwise disagreeable or inclement weather, we frequently bed these sheds from our straw stacks. I believe this is about all I have to say.

Remember, the main thing is to feed, feed, your calf all the time until he is a yearling, and your yearling until he is a two-year-old, or to such weight as you wish to market him. Never let him miss a day nor a feed, then if you have first bred him well there will be some profit in it. You will keep up the fertility of your farm, and you will keep up interest in farming; interest on your own part and interest your boys. Of all farm processes I know of none are more interesting than the breeding, care and feeding of high class beef cattle.

After considerable discussion Hon. E. E. Chester, of Champaign, Ill., spoke further upon cattle feeding as follows:

CATTLE FEEDING.

My time being limited, I shall but briefly touch a few points in this subject of vast importance to farmers and stockmen of our State. Inasmuch as there appears to be a new order, conditions and circumstances, a moving out of the old house with its stereotyped order of things into a new with its undeveloped order, many of our farmers ask themselves this question: "Shall we feed at all?" The old way was to buy steers near three years old, weighing near 1,000 pounds, of our neighbor who had saved his calves, yearlings and two-year-olds, until he had a "bunch of feeders." These being purchased of a number of such men the feeder (who was the man in each community who had his own or could command more wealth) was equipped with his hundred or more of old frames to develop into juicy stakes and tender roasts for the markets of the world. In from six to twelve months of corn in unlimited quantity and hay and grass as season demanded, the process was completed.

This process paid a good interest on "congress land," or on land bought previous to 1870, but it would not liquidate the indebtedness on lands bought at sixty to one hundred dollars per acre by the younger men, and in consequence, from 1892 to date the number of cattle raised in the corn belt of Illinois have decreased fully 60 per cent, largely because there was no other sure road out of the disaster that must follow. The "cattle on a thousand hills" have been substituted with "miles of corn cribs," and the disaster that is likely to come to present and future generations through soil exhaustion, overproduction of corn and insect multiplication, is of untold magnitude.

The few who have a dread of entailing to posterity an impoverished soil, as well as a wish to lessen the hush of a busy season, in fact to divide the farm work up into the twelve months of the year, and if possible to increase the profits of the farm, are asking "what shall we feed?" The answer to this question might be given in two words—"good ones." If every farmer understood the meaning of the term, and to deviate from the subject for one moment without fear or criticism from this audience, I will assert that the greatest need of the farmers of Illinois today is the lack of general and scientific knowledge of principles that govern this business. There ought to be in the University of Illinois one thousand of the sons and daughters of farmers who expect to make farming their life business, studying these principles, and a portion of their time ought to be given, under proper tutorship, to the examining of animals for their adaptation to specific uses. The best beef animal is one that when developed will furnish the greatest amount of highest priced meat. To accomplish this he must be a one-half blood or more of one of the four distinct beef breeds. He must have a good back with a well sprung rib, a wide, short head, full in the chest and flank, round, mellow hide and soft hair of any color you prefer.

Such an animal, properly cared for, will pay a good profit on food consumed over market price.

When shall we feed? This question has been well answered by the gentleman that has preceded me this afternoon. If there is one fact that has been demonstrated above another, it is that a greater amount of gain for food consumed can be secured from feeding of a young animal, let that animal be calf, colt, pig or lamb. From the first day a calf will lick up a little bran until it is ripe for the butcher's block, is the time to make the most profitable gain in quantity and quality of product.

In conclusion, cattle feeding should be a part of the business of all our farms, even if on a very small scale. With a class of cattle that are fairly good milkers and good beef animals, in sufficient quantity on every farm to supply the milk and butter demand of that farm and to consume the surplus of unmarketable feed lost or nearly lost for the present absence of cattle, something can be done to redeem us from the disgrace of not growing enough beef in the corn belt of Illinois to feed this corn and blue grass belt,

Col. W. H. Fulkerson, of Jerseyville, Ill., made a few interesting and humorous remarks, after which adjournment was made to 7:30 p. m.

WEDNESDAY EVENING, NOVEMBER 16.

The meeting was called to order by the President, A. P. Grout.

President: As I stated this afternoon, we have with us Mr. C. S. Winslow, of Vermont, who is the champion of the Ayrshire breed of cattle, and we will now give him an opportunity to present his claims.

Mr. Winslow then delivered his address, which is found in the appendix to this report.

The next on the program is an address, "An Undeveloped Market for Pure Bred Males," by Prof. Eugene Davenport, of Champaign, Ill., as follows:

From the first settlement of this country until now some of the finest specimens of live stock produced on the other side of the water have been

brought to America by men who have believed it possible to improve the efficiency of domestic animals by giving careful attention to their breeding and subsequent care.

For more than one hundred years, and especially in the last half century, favorite blood lines have been carefully preserved and protected from contamination. More than fifty breeds of live stock are owned and bred in the United States, each protected by an association that believes in its merits, and by system of records that insures purity of blood.

As a business proposition the question naturally arises, "What has been the influence of these fifty or more breeds upon the live stock of the country?" What impression have they made, and can anything more be done by meetings such as this to still further spread the influence of our great herds and diffuse their excellent qualities among their kind?

Nobody is willing to go sponser for the absolute accuracy of published statistics, and yet they do teach something. Confining attention to cattle, not because they are the only stock of importance, but because they represent large values, and because more is known about them, let us attempt to answer this question of the influence of the pure bred herds.

Less than one per cent of all the cattle of the United States are registered animals of any breed, and only 16 per cent are grades of one-half blood or better. Of course it will not do to say that the other 83 per cent are worthless scrubs that have never profited by the good blood of any breed. Most of these have doubtless enjoyed some advantage from the general diffusion of blood; but, if so, it must have been accidental and not intentional, else they would have been at least half-bloods, which is the first product and the lowest terms of the effort to improve live stock by the use of better blood.

It looks as if most of the breeding of the country is going on without much reference to the higher quality of the animals you breed, and that are the aristocracy of their kind. It looks as if the mass of men who raise cattle do it thoughtlessly in a blind effort to secure cheaply something to consume their grain and roughness. I think they commonly succeed in this attempt, but whether with profit is another matter. Do you suppose that the animals that make up this 83 per cent can bring the owner as much money per acre for corn, oats and hay as can those of the 16 per cent? You know they can not, but he does not know it; you must go and tell him, and not only that, but you must sell him the animal to work the improvement. You are a lover and a student of cattle. You are a breeder and know the qualities that insure profitable feeding; he is a grain raiser and knows but little about it. You will never make of him a great breeder; that does not matter; the country does not need too many breeders, but it will always have thousands of stock raisers with whom the animal is only a means of marketing the produce of their land, and you can and must, for your good and their own, convince them that their methods are wrong. Something is wrong when 83 per cent of our cattle are without good sires, and when at the same time the breeders of the United States are suffering for markets for the produce of their herds, especially the males, and except as they can buy, sell, or trade with one another, or set up in business an occasional new venturer they are forced to unload their surplus upon an unwilling public at whatever price it will bring. I know that breeders do not like to confess this, and I do not blame them, because it is humiliating. They are often tempted to deny it, but we all know that a half million registered cattle are abundantly able to produce enough pure bred sires for the sixteen and a half million cows of the country and to give every calf one good parent. That it is not done shows that our herds are not performing the full labor of which they are capable, and which the cattle interest stands in need. The writer knows and the hearers know of many a pure bred herd, particularly of dairy cattle, in which most of the bull calves are systematically destroyed, the reason given being that there is little call for them for breeding purposes, and that the milk of the dam is worth too much to raise them for the block.

There is a kind of parallelism between the numbers of registered animals, the percentage of grades, and the agricultural condition of a locality. For

example, in the North Central States 1.21 per cent are registered cattle, and 22.21 per cent are grades; while in the South Central States their numbers are .46 of 1 per cent, and 6.77 per cent, respectively; in Illinois 1.4 per cent are registered, and 21 per cent grades; in Florida but .25 of 1 per cent registered, and 1.24 per cent grades.

Iowa leads the states with 60,000 registered cattle, and though the per cent is lower than in Illinois (1.2 against 1.4) she has made better use of them and has 30 per cent of grades against our 21 per cent. She leads all the states but Colorado. Again the dairy reports show that the largest returns per cow are invariably in those states that have the highest per cent of registered animals and their grades. From any point of view that may be chosen the cattle industry is prosperous in just about the proportion that the blood of the improved breeds has been diffused among the masses. But the diffusion is surprisingly small and eminently unsatisfactory, both from the interests of live stock in general and from that of the professional breeder.

The dairymen are the worst sinners in this matter of neglect, and they ought to be converted with a strong hand and a stretched-out arm. There are always conspicuous exceptions, but as a class of stockmen they expect to buy a cow fresh, keep her till dry, then sell her for beef and buy another. Their argument is that in this way they never get any old stock on hand. That is like selling an engine for scrap iron after the first year's run to prevent its getting old. These dairymen are too anxious for milk to spare a little to raise a calf, besides they do not like the trouble. They flatter themselves that they are able to tell a good cow at sight, but under the present system who is breeding the cows of the country? No wonder that the average cow of the United States makes but 130 pounds of butter per year.

Here is a barn full of cows (presumably good ones), kept constantly for their milk. What a place to do breeding with almost no expense! If a cow is worthy to occupy a stall and consume good feed—if she can provide a profitable market for the products of the soil, then she should produce regularly, by a sire of the best breeding, in order that she may leave worthy successors behind her. Any dairyman can raise a better cow than he can buy, and for less money. His business naturally affords him all the materials, save only one animal to head the herd, and you who breed good cattle must convert this erring brother to rational methods. You must convert the general fraternity of stock raisers, who are not breeders, and begin with the dairy herds, which are the worst centers of offense against good breeding.

The writer of this paper believes that the legitimate function of our great breeding herds is the production of males for the improvement of the common stock of the country by the process of grading.

The breeders of registered animals evidently have yet something to do in the business of developing a market for their males. If a manufacturer discovers a locality or an interest that does not take his goods he immediately ascertains the reason and puts an agent there to convince those people that life is no longer worth living, and that money making is no longer possible, unless they buy his commodities. This effort at developing markets is not only by personal visit and solicitation, but it is systematic and complete. This country is policed in the interest of making sales. The seller is always at the disadvantage, because the buyer resists on principle, and the seller must seek him and convince him that his interests are suffering, as they truly are, in the matter now under discussion.

It is useless here to dwell upon the advantages of grading. It is the easiest possible breeding, and therefore fitted for the man who is not either by nature, or by business relations, a breeder. You as breeders know the difficulties in mating animals that are strongly bred on both sides. You have both seen and felt the disappointing results of an unfortunate blending of hereditary characters not compatible, and you know that the one who is not both skilled in these matters and attentive, can not manage the difficulties. You know that among the professed breeders more men fail than succeed in really improving the animals they breed, but that in grading the sire is always prepotent over the dam, and the whole thing is so easy that with half a chance it will succeed.

The writer has been often criticised by breeders of registered stock for advocating the practice of grading, the reason for the criticism being that nobody ought to favor any system but the best. That criticism entirely misunderstands the attitude of those who advocate grading. It also, if I may be pardoned the assertion, fails to grasp the idea of live stock improvement in all its relations.

Let us analyze the situation. You who breed registered stock are attempting to improve their character with successive generations by the principle of selection, operating in favor of desirable variations. I hear breeders talk a great deal about heredity; but variation is the principle out of which improvement comes. It is your business to catch these valuable variations and fix them in individual animals that they may be sent out as sires to secure to the live stock of the country by heredity what you have fixed in your herds by variation and selection. It is your function to originate and fix quality and sell it to the general stock raiser. It is his function to use. You know that high character in animals is an expensive commodity and, that if most men own it, they must buy it.

When I advocate grading, and when I ask you to do the same, I do it because it provides the legitimate market for the qualities you have produced, and because it is the only way in which they can reach the stock raiser. To advocate grading is not at all to advocate mixed breeding, nor is it to advocate it as a means of improvement, except in the great mass of live stock. You do not raise your herds for the fun of it, nor to buy and sell among yourselves except as to an occasional animal and for a definite reason.

It is often said that if enough men would engage in the breeding of pure bred stock our markets could be entirely supplied with animals capable of registry. This can not be true in any good sense. It overlooks the personal element. Of course it is true that all the animals of the country could be produced from stock eligible to registry, if only the right start could be made; but it is also true that the great bulk of this live stock will always be produced by men with whom the animal is a means, not an end—by men who for many reasons are unable to make proper selections. You must do it for them and sell them the finished product, because their efforts at breeding pure bred stock would only add to the numbers of pedigreed scalawags, of which we already have more than enough.

Grading is not a temporary, but a permanent, policy for the general stock raiser, because, supposing we could start with everything of high quality, purely bred and registered; some are yet better than others; only a few are really great, and these as a matter of public policy ought to be collected in herds in the hands of men of the highest skill and the most love for working improvements. So there will always be herds of select animals in the hands of skillful breeders, and grading should be the recognized means of distributing their quality over the country through the medium of sires. In other words, the general excellence of domestic animals can never rise so high as to undo the occupation of the professional breeder, and his business is a permanent one from which he will never be dislodged. His methods are peculiar to the business of originating and perpetuating quality, and are substantially different from those of the stock raiser who buys it to distribute among the commercial cattle of his raising.

It is not to the interest of the breeder, nor to that of live stock, that everybody should attempt to raise registered animals. It would only fail and throw discredit on pure bred live stock. Now I beg of you recognize this difference in this business and theirs; advocate policies that are feasible and become teachers of the people, not in the methods you must use, but in those necessary for them to employ. The need for great breeders is limited, as is the material for them to work with, but the need for grading is unlimited.

It is impossible to say just how much extra it costs to give a steer a pure bred sire. It depends upon the breed, the condition of the markets, and upon the numbers involved, but I have been in the habit of saying that on the average \$2.00 is sufficient to provide a calf with a registered sire from some

of the great recognized breeds. Whatever the figure may be that shall represent the extra cost in producing the steer or cow from the pure bred sire it is comparatively slight, because the male parent is capable of producing so many offsprings in a single year. If now the same calculation be applied to the dam with the object of producing not a grade, but a pure bred calf, we shall find that the extra expense involved in providing this calf with a pure bred dam will be not less than \$20.00, and probably more. Any man who soberly considers this for a moment will see that it is entirely feasible to produce commercial stock with the best of sires, but not with the best of dams; their numbers are too few and their produce is too limited.

There are sixteen and a half million cows in this country, and a half million registered cattle of both sexes. A little calculation will show that these registered animals, if given a fair chance, would in the course of a very short time produce bulls enough of good quality to sire the entire crop of calves of the United States. As it is, less than one out of six enjoys the advantage of good parentage on either side, and the great dairy herds of the country, where cows are systematically kept in numbers, are almost never engaged in the production of calves to replace their dams. What is more reasonable than that these dairy herds, headed by a sire of approved breeding, should be producing a class of young of higher quality than their own, and become great centers for diffusion of better ability in milk production.

If the breeders of this country are guilty of a fault in this matter, it is that they have advocated for everybody, under all conditions, the same methods, painstaking care and high standards that are necessary for the management of herds of the highest excellence and the production of the finest animals known to man. In insisting upon this high ideal for everybody we set up a standard that will not and can not be followed. This is not said to degrade the breeder's art, but rather to elevate it, insisting upon it that the highest class animals can be produced only by the most perfect methods, on the best lands, and with the best of care; but after all this is done, it must in some way make its impress upon the general live stock interests of the country, or else pure bred animals are matters of luxury and have not contributed their proper influence towards the elevation of live stock interests.

One thing is certain, the demand for pure bred sires will never come of itself. It must be stimulated by men who are themselves personally and directly interested in its development. Education is always from above downwards. Breeders can not go on practically confining their sales to their own numbers. They must place their animals in the fields of the farmers of this country, and think more about developing a market for a bull at \$100 than in trying to sell a cow for \$1,000 to some novice who has more money than brains.

I have no plans to propose, except that the breeders find some way of stimulating the demand for males. Is there not some way in which a ways and means committee of the association can preach and teach these things in season and out of season, and save the lives of these well bred males and put them where they will be useful?

To be sensational is the last thought of the writer. The purpose of this paper is to bring soberly to the attention of breeders the fact that the business for which their herds legitimately exist is undeveloped; that the stock raising of the country is going on largely without them, and without much impression from the excellent animals they have produced; that in our zeal to maintain high standards and promulgate safe processes we have overlooked our real markets and the methods to be pursued by the men whose patronage we not only desire, but must have. Can not this association devise some means of placing more pure bred males in service, and thereby not only create a market for males, but stop the loss of thousands of dollars in food values now wasted in the attempt to make meat and butter from inferior animals? Let us not set up a standard for the public that it will not, and can not follow, but rather one of mutual profit. Let us get together, we who breed, and we who grade, and buy and sell and get gain.

As Prof. Davenport was unable to be present, his paper was read by Prof. P. G. Holden, of Champaign. It was a very eloquent and able paper and was appreciated by those who heard it. The president then stated that as the hour was getting late they had better proceed to the next on the program.

Mr. Henry Wallace, editor Wallace's Farmer, Des Moines, Iowa, then presented the following interesting paper upon "Clover Growing and Its Relation to Improvement of Live Stock."

CLOVER GROWING AND ITS RELATION TO IMPROVEMENT OF LIVE STOCK.

It is at least remarkable that while the common breeds of live stock have been the inseparable companions of man from the earliest ages, no general or systematic attempts have been made to improve them until within the last two hundred years. We read, it is true, of the pedigrees of horses in Arabia, tracing back to the four mares of Mohammed and occasionally to the choice mares of Solomon. The inventors of these tales seem to forget that there is no evidence that Mohammed ever had four mares in his life. If Solomon ever engaged in breeding fine stock, we would have heard something of it in the Book of Proverbs. Homer tells of a particular breed of horses, but evidently in the same sense that the Sacred Book talks of bulls of the breed of Bashan; of superior quality, evidently, but their superiority was due not to any systematic efforts to improve the breed but to the superior pastures of the particular country to which they belonged. The cattle of Bashan correspond to the tall oaks and big grass of that noted ranch country. It was not until the time of Bakewell and the Collings, and their co-laborers, of whom there were a great number, that we have any specific, well-directed and intelligent attempts to improve the breeds of live stock in great Britain, or, so far as we know, in any other country. This is the more surprising from the fact that the ancients were not ignorant of the laws of heredity. From time immemorial grandmothers have looked carefully over the last edition to the family and wondered whether it resembled most its father or its mother or their respective sides of the house. Abraham believed in blood or he would not have sent his servant to select a wife for that bashful young man, Isaac, from his own kindred, and old Rebecca would not have fretted so much over the probability of Jacob marrying a daughter of Heth if she had not been a believer in good blood and in the evils of bad blood in the family. Jacob had mastered the difficult problem of antenatal influence and knew how, by the proper peeling and placing of the willows that grew along the watering holes on his ranch to put the rings and streaks and colors on his calves and kids to his great profit and to the disadvantage of his hard-headed but sharp uncle, Laban. One can not but regret that he has not given us some hint of how he did it. It would have been worth money to Short-horn breeders. Between these two old ranchmen it was "diamond cut diamond." Moses had taught that both vice and virtue were hereditary, and intimated that while vice descended for three or four generations, the Divine economy favored the propagation of virtue.

Nor were the ancients ignorant of the effects of environment in shaping the animal's form. The Israelites knew that the trans-Jordanic country grew tall oaks and big cattle, bulls of the breed of Bashan, corresponding to the big grass of the section, and these were their chosen symbol for massive size and corresponding strength. Stock breeders in all ages could scarcely have failed to note that large types of cattle grew on rich pastures and that the cattle and sheep of the mountains or barren districts were inferior in size; in short, that no large breed or type of live stock which lived mainly by grazing was ever originated or could be long sustained in a mountainous or barren country, and that the larger breeds were invariably found on rich and fertile soils. In view of these well settled facts, it is very remarkable that systematic efforts to improve breeds of live stock should date from a very recent period, Bakewell, the father of live stock improvement, having been born in 1725, dying in 1795; Charles Colling, born in 1750, dying in 1836; Robert Colling, born in 1749, dying in 1820; Benjamin Tompkins, the father of improved Herefords, born in 1745, dying in 1815; the improvers of other breeds coming in some time afterwards, and all of them who succeeded adopting the methods of in-and-in breeding, which was largely the secret of their success.

It is significant at least that these improvements in live stock breeding began about the time when clover became general in England, having been introduced about 1645, its cultivation becoming general in the first half of the eighteenth century. It will not do to assume that this improvement in live stock was due altogether to the introduction of clover. The rotation of crops, the introduction of turnip culture, the use of the drill and drainage all came in about the same time, as did the abandonment of the practice of grazing cattle on the commons, and the enclosure of lands in separate fields. The great motive was the advance in prices about this time and which continued until the time of the battle of Waterloo. Nevertheless, if we study the subject carefully it will be seen that clover was entitled to larger credit in this improvement of live stock than it has yet received. Coincident with the introduction of clover into Great Britain and subsequently into the United States, there was a very marked and rapid improvement in the size of cattle, sheep and horses. The saddle horse of England at about that time was only from thirteen to fifteen hands high. Farm horses were larger, owing to the introduction of Flanders blood. It is related of Henry VIII that when he first saw Anne Boleyn, he exclaimed: "Gad, she looks like a great Flemish mare!" But we suspect that the Flemish mare of that date would cut but a sorry figure when compared with the great mares of the fens of Bologne or Belgium. Agricultural editors sometimes give the weights of live stock just prior to the time of Bakewell and the Collings and tell what wonderful improvements have been made by breeding. They seem to forget, however, that the weights are dressed weights, and half their reported increase is enough to satisfy any Short-horn or Hereford breeder.

Coming to this side of the water, an equal advance in the size of cattle and horses may be noted as the different sections of the country have adopted clover growing. John H. Wallace, in his recent work, has furnished the most abundant and indisputable proof that the horses of the Colonial period were seldom fifteen hands, and frequently as low as thirteen. The small size of horses today in sections where clover or alfalfa can not be grown is a matter so well known that it is needless for us to discuss it. Starting in at New York, passing through the limestone regions of Maryland, down through West Virginia, Kentucky, and the limestone regions of Tennessee, coming back on the western side of these limestone regions to Southern Illinois, crossing over into Missouri, skirting along Northern Arkansas, going north to Topeka, then extending northwest to the Republican, following that river out two-thirds of the way across the state of Nebraska, then striking a little northeast to a point some distance west of Sioux City, north through South Dakota to the northwestern railroad, thence northeastward to near the northern limit of Minnesota, then through lower Canada and back through Vermont and New Hampshire down the coast to New York, and we have encircled the clover country of the United States. We have also rounded up all the large breeds of live stock. We have taken in nearly all the breeders because we have rounded up the clover country. There are substitutes for it in the valleys of California and in the mountain states where alfalfa can be grown by irrigation, but whenever we get out of this favored region and these isolated spots where a substitute is furnished, we find small, rough, poor cattle, small horses, small sheep, and the improvements, if any, are in the way of fineness of wool in sheep and fleetness of foot in horses. Having thus roughly grouped together the facts as we see them, it is more pertinent for us to inquire why it is that clover growing has ever been, since its introduction, the precursor of improvement in live stock. First, because the growth of clover is the only cheap and reliable method of maintaining the fertility of the soil, which is the essential condition of the production of improved live stock; especially of the meat producing varieties. It is utterly vain to hope for success in growing fine cattle, large sheep or hogs, except on rich land. Outside of the corn and clover belt, the finest breeds of hogs become razor backs. In two generations, improved brood sows of any breed would not recognize their grandchildren as belonging to the same breed or race. Cattle outside the clover belt and away from other legumes depreciate in size, quality and form by regular gradations; horses not so much, because their food is largely grains which can be brought in from other districts; man less than horses, because

he supplies his table from all parts of the civilized world and hence is not to so great an extent a creature of environment. Where he lives, as do the Chinese, the Japanese, Hindoos and Florida crackers, on the produce of his own land and climate, he deteriorates in size and vigor. The general cultivation of clover, therefore, furnishes the prime condition for the improvement of live stock by enabling the farmer to conserve natural fertility, and to restore it on lands where it has been wasted by the soil robber, and thus fit both himself and it for producing the highest types of improved live stock. Without the general and free use of clover it is not possible for the grain to either retain or restore the accumulated fertility of ages and either produce or be in position to purchase improved types of live stock.

Permit me to develop the last thought a little more fully. One cause of the improvement of live stock in England in the last half of the 18th century was the increase in the wealth of the farmers through the advancing prices of products. When farmers are not accumulating money they are not purchasing largely the improved grades of live stock, and if they are not purchasing them at a paying price the improved stock breeders will be limited to men of wealth and with a taste for that kind of work and who therefore follow it, not as a business, but as a recreation. The last few years have given us a striking illustration of that fact. Only the breeders who found a market on the range have been able to survive even the short period of depression lasting from 1892 to 1896. There has been a deterioration in the quality of live stock in all the prairie states during this period. The farmer would not keep up the grade of his stock by purchasing the best the breeders could furnish for the simple reason that he could see no good money at the end of the deal. It was short sighted, of course, and foolish as well, but we must take human nature as it is and not as we think it should be; therefore, it must ever be true that the success of the live stock breeder will depend largely on the general prosperity of the men to whom he sells, and this depends very largely upon their ability and willingness to use clover to maintain the fertility of their lands.

Farmers in general are understanding now, as never before, that the growth of the animal in muscle or flesh, as distinct from fat, is dependent upon its supply of nitrogenous or muscle making food. Without being able to state it in perhaps so many words, they know that while carbohydrates can keep up the heat and be stored away as fat, they can not under any circumstances produce muscle, and that the muscular development in any form of live stock depends on a proper proportion of muscle making or albuminous food. The clover and alfalfa furnish muscle making food, whether in pasture or in hay, in the cheapest possible form, doubly valuable as a food in itself and as a means of rendering the excess of carbohydrates, of which we have such a cheap and abundant supply, available. Not only does the live stock breeder understand more fully from year to year the value of clover and alfalfa hay, if he would secure the highest development in his young cattle, sheep or horses, but the ordinary farmer is beginning to realize that, no matter how high the breeding, there must be high feeding on flesh forming lines if the progeny are to secure a complete development that will do honor to the breed, the breeder and the sire. Nature works no miracles to make up for man's mistakes, however exalted may be the piety or how good the intentions of the man that makes them. It is vain to attempt to make bricks without straw—to develop a muscular animal without muscle making food—to attempt to develop the progeny of an animal of the highest type without food corresponding to that used by the sire and dam. It is the easiest thing in the world to produce fat in a country where the fuel and fat making elements of food are very cheap and abundant, the frame being first provided. The difficult problem with the breeder, whether on the farm or in the breeding establishment, is to provide frames ready for the finishings, and it is because clover provides a means of conserving and restoring the stored fertility of ages and by its intelligent use gives the farmer means by which to purchase improved sires, and because it in itself furnishes the material essential to the development of the most perfect form, that it is the standby of the farmer. It is for these reasons that it, or where it can not be grown, legumes that serve the same purpose, is the *sine qua non* of successful stock breeding in

the United States of America. The secret of its power lies in this, that by means which I have not time now to describe in general, and which no man has fully mastered in detail, it avails itself of the free nitrogen of the atmosphere and draws on the winds of heaven for at once the most costly element of fertility and at the same time the most easily wasted, and because, in addition to enriching the land, it furnishes in its forage the particular elements of nutrition which the young and growing animal requires. It is, therefore, in its various forms, the most valuable plant, not merely to the American farmer, but to the improved stock breeders in any age or in any country that has a soil and climate suitable to its growth. (Applause.)

After an interesting discussion, the meeting adjourned till Thursday morning.

THURSDAY, Nov. 17, 1898.

Association was called to order at 9:30 a. m. by Mr. E. E. Chester, the president being absent.

Mr. Chester: In the absence of your president, I have been called upon to call this meeting to order. It is time to begin the work. We have on our program this morning an address, "The Marketing of Live Stock," by Mr. John Clay, Jr., of Chicago. As Mr. Clay is not here, the Secretary will read his paper.

Mr. Rankin: Mr. Clay fully intended to be present at this meeting, but found that he was detained in the west and wired us to that effect and sent his paper to be read to this assembly.

He then read the paper as follows:

Thirty years ago, when I first began farming in Scotland, we had no auction marts—nothing but the old-fashioned markets which in most places have had to give way to the new methods of the auctioneer. Then in the region where I resided, near to the old border town of Berwick-on-Tweed, with its rippling river and gray old walls, lived Joseph Ruddick. He was the great live stock dealer of the country-side, and for many years before I appeared on the scene had handled the majority of the cattle and sheep in Berwickshire and North Northumberland. He had a wonderful hold on the farmers and feeders. He always bid to buy and he was honest to a fault. I can see him yet coming galloping up the lane to my father's farm, after a ride of 20 to 30 miles. Probably he had bought half a dozen lots of cattle or sheep on his rounds. He was a big man on horseback, but on the ground he looked less, having thin, rather shaky legs, but a grandly formed head, handsome we would call it; he had a sharp, watchful eye, but at the same time frank and open in its expression. For over a quarter of a century he did the great live stock business which centered in the above town, and if he had not given way in late years to "high life," he would probably have died a rich man, but the use of stimulants, mostly champagne and port wine, ruined his constitution, and he retired to a farm where he ended a wonderfully useful life. In those days we used to sell all our live stock through this channel. An appointment was made at the market on the previous Saturday, and punctual to the moment Ruddick rode or drove up. We looked the stock over and then proceeded to dinner, and after this had been discussed bargaining began in earnest. It sometimes continued far into the evening and occasionally had to be settled the following Saturday; but as a rule the stock found its way into Ruddick's hands. The sheep were killed at his slaughter house in Berwick and forwarded to London for the dressed meat trade. It was my first introduction to this class of business, and the more I see of it the better I like it. My old friend, for so I can call him, was before his time—Armour and Swift had scarcely seen daylight when Ruddick was dressing sheep in the old Border town. If he had had a field like Chicago, he might have equalled the above gentlemen in the size of his dealings. But at Berwick his sphere was limited, and he had only one line of railroad leading to London. The cattle he purchased were worked off at such weekly markets as Newcastle-on-Tyne, Manchester, Birmingham, Leeds, and sometimes London. It was a great business, worked by a clever man, and it gave the farmers a splendid outlet for their stock. It made them judges of their

business, but nowadays there are in Scotland but few itinerant dealers. The stock goes to the auction market, or is assigned to commission men as we do in this country. I liked the old style from a farmer's point of view, although it must be admitted that the dealer, who was daily, and almost hourly at his business, had a considerable advantage over the feeder, who probably sold three or four times a year. We could not in those days consign so handily as they can nowadays in Great Britain and here. We were practically tied down to the dealers, and a farmer must then be a judge of his business or get lost in the shuffle. Today, in Scotland and England, it is not necessary for a feeder to be a judge of a fat beast. He can market his wares through channels that do not call for much judgment on his part, and then even he can buy by the "ring" side his lean cattle and trust more or less to his neighbor's judgment in stocking up his yards or pastures.

I have traced the above methods as an introduction to our ways here so as to throw light on the subject and show the changes that have taken place in the older and more conservative country. It is hard to change the leopard's spots, and it is only by slow degrees that changes come across the water. Here it is different. We have few prejudices to contend with, and we never consider sentiment in any of our business methods. I know of nothing so cold blooded as our ways of doing any kind of business, whether it be selling sugar or soap, wool or wind. There is nothing probably so absolutely cruel in our business history since the war as the manner in which the old-time butcher was wiped out by the dressed beef men. The defeat of Spain in the late war was nothing to it. The Big Four mowed them down like dervishes before Kitchener's Maxims, but when it came to retailing the meat by their own agencies, the task was not so easy, and the meat cutter of today is evidently in a safe position. The battle royal just now is not dressed beef against old-time butchering, but in their own ranks Greek meets Greek, and competition was never so keen among those men as at present. The fight among them is not so much in the yards as it is in the fields of distribution, and it is developing further, for we see those big interests rivaling one another in trying to build up stockyards and outside schemes, and he would be a clever man who could predict what the end will be. For the present, at least, the producer and feeder is having the best of it, for he has not only legitimate competition in his favor, but he sees one or the other of our big concerns trying to build up their properties in the different stockyards, in starting loan companies to assist feeders and thus divert stock to their particular yards, or working railroad side shows, etc. To me, a humble worker in the field, it seems as if the close methods of the old days of the dressed beef concerns have reacted and found vent in every kind of speculation that hangs around and is incident to the handling of our live stock. The wonderful success of the business, the rising tide of this great western country with its cheap land and virgin wealth, has led up to vast schemes for profit. The railroads have had their Waterloo in late years. What is to be the end of this increasing branch of industry? Is it to go ahead, or have we reached the top of the wave? Meantime it has given our farmers and feeders a wonderful chance to market their products. They have reached, through the channels of Armour, Swift and dozens of others, the ends of the earth. The demagogue will tell you how these concerns have prospered and should be taxed out of existence. True, but what is their gain in comparison to the feeder's and ranchman's? It is as one against the thousand, or relatively in such degree. Every new field that is opened up, every appliance that saves labor, every hair that is saved, means much to the manufacturer, (for the dressed beef men are nothing more or less), but it means many times more to the producer of the raw material scattered in countless thousands over this broad land.

The drift of cattle feeding is toward early maturity, and it is well for us to mark closely the signs of the times and judge accurately the wants of our consumers. It is no use trying to drive our heads against the stone wall of three and four-year-old steers. Today we want two-year-olds, and even buy yearlings to hang up in our refrigerators. To attain this early maturity we must use the best class of bulls. I care not whether it is a Shorthorn, Hereford or Angus cross, so long as it is a good one. As Col. Judy often says: "The corn crib cross is the best," but to give this cross effect you must have

good material to commence upon. There never was a time in the history of this country when good cattle were proportionately so scarce. We have an endless number of common grades, but the broad-backed, sweet-headed, sappy feeders are in the minority. In my travels through the west the above facts are patent to the eye. The consequence is that good cattle are at a premium while the market for medium and inferior grades is declining, and the end is not yet. We can work off those inferior cattle through our ranges and big pastures of the west, more especially in the Indian Territory, western Kansas and western Nebraska. There, with cheap feed, a lower grade of cattle can be handled, but on our farms we must have the best and nothing but the best. The present aim of our farmers and feeders must be quality—let the ranchmen work off the cheaper kinds. You may of course pay too much for quality—that is, the feeder may do so, and for twelve months past he has done so, but the producer can never give us too much blue blood. In this country in marketing our live stock we must face two great questions, First, the competition we have from other parts of the world; as we produce more than we can consume in meat products, the foreign demand is a leading factor. We must study it, our government must cater to it and encourage it, not so much by legislation as by reciprocity. We must meet the European demand, our great customer, in a liberal spirit. We must send only the best and keep up the standard of our goods. It is not a political question; it is one of commerce, and owes much to diplomacy and tact. Be sure and never export anything that can be fairly criticised. Honesty is the best policy here as elsewhere. Too much stress can not be laid on the importance of this subject. A nation, as much as an individual, must look after its interests. Grain and cotton, our other great exports, are standard. You can grade them, but beef, mutton and pork products vary, each cut or portion standing for itself. Our packers understand this, but the government is slow—diliatory, and during the late administration almost antagonistic. The agricultural industry all over the world is proverbial for poor organization, and nowhere are we ridden over and kicked from pillar to post so much as in the central states of this continent; the politicians think of us only at the last moment and then do but little. What we want to enable us to realize the best prices for our live stock is a more enterprising and aggressive policy, a policy that will make our goods be taken on fair terms and in a fair field.

In the second place, we must look to our home demand. The taste for good meat of all kinds is increasing. Go east and you will find out. The people want the goods and are ready to pay for them. In pork we have practically reached the perfection point. In beef we are retrograding, while in mutton a vast advance has been made in the last five years. The taste for mutton is increasing rapidly, and it looks as though we would eventually be as great a mutton eating race as the Britishers. The tide is flowing in the sheep trade, but, as said above, in cattle, our progress is backward instead of forward. It seems disgraceful that it should be so, but we can not controvert it, and the sooner we commence to improve our methods the better. There are signs that our breeders are inclined to do better, at least west of the Missouri river they have bought liberally of good bulls for two years past, but the demand in the great granger states is still sluggish and the outlook is only fair. "God helps those who help themselves," and our farmers have no one but themselves to blame. They see the writing on the wall, but do not heed it. Let us, therefore, take a lesson from South America and Australia, encourage the breeder of pure bred cattle and through his agency lead the nations of the world in the path of live stock progress. (Applause).

President: Gentlemen, this is a very interesting paper and from one of the very best authors on that subject. A great many of us, no doubt, have a desire to discuss it. Mr. Rankin, I think, will assume Mr. Clay and will answer any questions that may be asked.

Mr. Rankin: Not much; I won't stand for Mr. Clay. I agreed to read Mr. Clay's paper, and that was all. I think, however, we can very profitably afford to spend a few minutes in the discussion of this splendid paper.

President: Is there anyone disposed to say anything on this subject?

Mr. Wallace was called upon to say something.

Mr. Wallace, of Iowa: I was otherwise engaged at the time that paper was read and therefore did not hear very much of it. I want to say this one thing, that farmers of Illinois must go to work and improve their grade of stock or else they will have to get out of here or deal with the sheriff. When we come to this question of improving live stock, one of the greatest obstacles in the way of it is what I call cross craze. There is lots of people that believe that by mixing all the breed together they will get one of the finest breeds of cattle. In looking over the proceedings of the Iowa Live Stock Association of 1881, 17 years ago, I found that one of the professors of agriculture of our college, in discussing the farmers' cow, advised him to take a Jersey cow and cross her with a Shorthorn, follow that up with a Holstein and so on, and you would have an ideal farmer's cow. I want to say to you here that I am a partisan of no breed of cattle. If a man likes a cow, let him stay by it; if he likes an Angus, let him stay by it; if he likes the Jersey, let him stay by it; if he likes the Shorthorn, let him stay by it, but I do not believe in this thing of mixing up the breeds. In trying to get good cows the result usually obtained is the worst. Make up your mind what suits you, what suits your locality, what suits your farm, and nail your flag to the mast so that it can not be taken away and follow in that direction, and you are bound to win.

Mr. J. H. Pickrell: Mr. Wallace is good authority on that question, but we can go a little further than that. I did not read it up on purpose, but I accidentally came across something which I will read. You see by the statutes, as it reads in "the good book," "thou shall not let thy cattle gender with the divers kind." If that had been done we would not have had quite so many scrub cattle that we have now.

Mr. Rankin: I am glad our ex-Secretary, Mr. Pickrell, has been following Dick Oglesby's advice in reading his Bible.

Mr. Fulkerson, of Jerseyville: I do not think it can be followed too strongly along this line. Mr. Wallace was right. The cross makes the farmer's cow, that is the kind they give, and in getting back to old times, the old original scrub was brought here by the different states from Holstein, England, and France. As their children came west they gave them these cows, and now our farmers are making just as complete scrubs as their grandfathers did. And to cross one of these cows to a Jersey spoils all the breed, and it is simply nonsense to do it.

Mr. Wallace: A friend of mine had four breeds of pigs, but two distinct herds. He bred them in pairs. If you want to get scrubs of the worst kind just simply cross breeds. They were all colors and all types. I said to him: "My friend, how did you get this stock?" He said: "I determined to have the best. I used the Berkshire, Poland China, and I used several others, and I got a breed that the devil himself could not build fences to keep them in."

Mr. Chubbuck, editor Coleman's Rural World, St. Louis, Mo.: I agree in a manner with the remarks of my friend, Wallace, of sticking to the kind that I prefer. To illustrate, I was raised in northwestern Missouri; in my early life the raising of beef was a business; we had nothing but Shorthorn cattle then. But after a while the raising of beef cattle gradually went out and all at once dairying came in. While it would be best for a man in my circumstances to have a distinct dairy herd, but he is not always situated so he can jump from one into another. The demands of that country now are passed from beef production into dairy production. The people not only lacked sufficient knowledge to handle dairy stock to the very best advantage, they had to grow into a dairy knowledge; they did that gradually as they began to enter more into the dairy business. Now it seems to me that there was some reason why they should cross their best Shorthorn cows with Jersey bulls or some other breed. I think it was a very good result in the production of butter and milk and in the production of cows. To sell out my beef animals at once at a loss and buy dairy cattle, I did not have the dairy knowledge to handle that dairy stock as it ought to be handled.

The next on the program is an address, "The Bacon Hog," by Professor Thomas Shaw, of St. Anthony Park, Minn.

THE BACON HOG.

There is no little difference of opinion at the present time as to what constitutes a bacon pig. The school boy would answer that it is a pig which produces bacon, and so far he would be correct. But since it is true that all swine produce bacon his definition falls short of the whole truth. The English dealer would doubtless say that it is a pig so long and so deep of body that it produces much side meat, and that the side meat thus produced is so streaked with alternations of fat and lean that it is much relished by the consumers. The Danish farmer would probably claim that it was a pig grown chiefly on the by-products of the dairy and barley, and which produced bacon that brings the highest price paid in the English market. The Canadian would answer that it is a pig grown on foods other than clover and corn and which produces bacon that sells for a price nearly equal to Danish bacon. The growers of the Improved Yorkshire swine and Tamworth breeds would claim that it is bacon produced by the swine of these respective breeds. The breeders of razor-backs would feel strongly inclined to assert that the true bacon pig fed in their pastures and frequently out of them. And many of the swine breeders of the corn belt, if they would but speak their minds, would answer that the bacon pig was an animal not wanted in the United States. Amid so much of conflict of opinion as to what constitutes a bacon pig, how are we to secure a definition that will meet with general acceptance? We can not hope to do so until there is more of a convergence and crystallization of public opinion with reference to this important question than exists at the present time. The dictionaries have not yet given us such a definition. And yet in discussing this question, it is just such a definition that must underlie the intelligible discussion. In the absence of such a definition, the only resource is to try and frame one.

The bacon pig, as I understand it, is a thrifty animal, so long and deep in body that it produces much side meat in which the alternations of fat and lean are numerous, and which does not shrivel unduly in the cooking, and which is sweet and gratifying to the taste of the average eater. It will be observed that this definition does not narrow the production of bacon to any one or two breeds; it does not limit the feeding to any two or more articles of diet, nor does it exclude the possible production of bacon from any one state in the union. But it does exclude equally the corn grown hog, the razor-back in his unimproved condition and the lean, slabsided animal which has been insufficiently fed, and which, because of its leanness, some shortsighted persons are inclined to look upon as a producer of bacon. The corn grown hog can not come within the charmed circle, since the bacon which he produces will be nearly all fat and it will melt away in the cooking. Nor can the razor-back, since the proportion of the lean in his side will be unduly large and lacking in tenderness, and his cousin, the slabsided, ill-fed hog, will come under the same condemnation.

I notice that many of our swine growers in the west are up in arms against the introduction of the bacon pig. This judgment is based on expressions of opinion which have appeared in the agricultural press. For every one man who says a word in favor of the bacon pig there are ten men who oppose his introduction. I have frequently heard old Uncle Theodore Lewis tell about how he dealt with pigs which showed indications of hog cholera in a herd under his charge. He armed himself with a suitable weapon and stood by a narrow gateway. The pigs were then driven through the gateway and every one passing through which bore on it the marks of the dread disease was dealt a blow which sent it into the land of forgetfulness. Such it seems to me is the attitude of a great majority of the swine growers of this country with reference to the bacon pig. Secretary Wilson ventured to say a word in favor of the bacon pig, and a shower of shrapnel at once fell upon the statement. It is not the first time in the world that men have fought against their own best interests. But it is the first time probably in the history of mankind when men so intelligent have acted thus. We pity the Spaniards who fought and bled for a mistaken conception which they called honor. How then, should we not feel for the men who are fighting for a conception in their ideal of a pig which is unquestionably inferior to the ideal they are attacking?

I do not wonder that the average American farmer is much wedded to his lard pig. He has spent decades in moulding him. He began with materials the most unpromising and divergent; that is to say, he began with the forest ranger, who fed on roots and mast. And the moulding has been so perfect that but little more can be desired in form or feeding qualities by the growers of the average American lard hog. This product of American skill can challenge the world in easy feeding and early maturing qualities. But in their eagerness to secure these qualities our breeders have gone too far. Their mistake has been that of the Scotch Highlanders at Waterloo. They have refused to stop at the right place, and to their own great loss. In the bee-line which they have made for those two qualities they have overlooked others equally important, as for instance, stamina, breeding qualities and highest quality in meat. There can be no denying it, the swine of today in the corn belt have not the highest stamina; they are not the best breeders and they do not furnish the highest type of meat, and the breeders of swine in the corn belt have made them so. Before these improved qualities can be restored the pendulum must swing back again along the way it came. And it is my conviction that it will reach the perpendicular right over the back of the genuine bacon pig.

My contention, therefore, is that the swine growers of our country ought to grow the bacon pig. In the light of self-interest they ought to grow it, and for the sake of the greater ultimate gain that it will bring to them. I believe they will be compelled to grow it whether they want to do so or not. And when I speak thus I do not mean that they will be compelled to do so in order to capture the foreign market, but to satisfy the growing taste for leaner meat in the home market. Nor do I mean that the bacon pig shall be grown exactly as it is grown in Denmark or in Canada, but that a style of pig shall be grown that will produce more bacon and leaner bacon than is now grown, that will have more bone and better bone, that will produce more pigs at a litter and better pigs, and that will give them more all round stamina and better stamina. Farmers of the United States, if these things are true, is it not the most stupendous folly to fight against them and to sling all kinds of mud at the men who are trying to introduce them?

Come now, farmers, let us reason together awhile. I said the swine growers of this country ought to grow the bacon pig. When I said this I did not for a moment think of insulting your intelligence by making a bold statement without giving the reasons. The first reason is, that it will give us a pig with better bone. Good bone is no less valuable now than in the good old days of the fifties when the pigs had to be driven long distances to market. But the apparent reasons for its value are different now. Bone is wanted to enable swine to pasture well. It is wanted to keep them on their feet under the heavy pressure of forced feeding, and it is wanted to keep at bay such troubles as rheumatism and gout, more especially in heavy brood sows and sires. Is it not a fact that good bone in a pig is nearly as essential to his well doing as good bone in a horse? To show the farmers how to strengthen the bone of their swine, Prof. Henry, Wisconsin's greatest experimenter, conducted many years ago some of his most valuable experiments. There is not a farmer in all the United States who does not value bone in his swine, howsoever much he may hate the idea of the bacon pig. Now it is a fact that all bacon pigs have good bone unless they have been unduly confined. You can't make a bacon pig without giving him good bone. The food that is essential to make good bacon can not do otherwise than produce good bone.

The second reason is, that it will give us a pig with good breeding properties. By good breeding properties is meant the property of breeding regularly, fecundity or the power to produce many at a litter, and good milking and nursing properties. All through the corn belt the lament is going up that the sows do not breed regularly, that the litters are small and uneven, and that the dams do not sufficiently nourish their young. How could it be otherwise, since the dams are sustained to so great an extent on that never-ending diet of corn? Corn is one of the greatest gifts a kind providence ever gave to the people of this country, and yet it is one of the most abused. The only product of the soil that is more perverted in the use that it is put to is probably tobacco. How on earth can a sow be a good breeder or a good

nurse that is fed three times a day and three hundred and sixty-five days in a year on corn? To expect a sow to breed well under these conditions would be to expect a miracle. And why should a sow be able to work a miracle in breeding when the great Paley says that no man has worked a miracle since the days when the successors of the apostles passed away. Now with good breeding qualities as with good bone, you can not grow good bacon without securing both, for the food that produces good bacon is most conducive to the production of good breeding and good nursing qualities. The behavior of the Improved Yorkshires and the Tamworths sustains the view just given. These are at the present time pre-eminently the bacon breeds, and they are pre-eminently distinguished by their good breeding and nursing qualities.

And the third reason is, that it will give us a pig with all round stamina, that is to say, a pig that is active on his feet, always ready for his food and able to put it to a good use, a pig that will stand forced feeding without breaking down, an animal that does not readily fall a prey to disease, sires that are active and useful to a good old age, and dams that will gladden the heart of their owners by the abundance of their production and by the handsome way in which they nourish them. Stamina is the great force that lubricates all the powers of the being. Without stamina no other qualities can be taken at full value. In the absence of stamina in a marked degree profits are neutralized, and they are cut down in proportion as stamina is absent. That our pigs are weaklings in the corn belt in comparison with what they ought to be no candid man will deny. They are not all weaklings since all breeders are not injudicious. Many of them are not weaklings since many of the breeders are not injudicious in breeding and feeding or in general management. But many of them are weaklings, and disease is ever present among them to a degree that is simply appalling and oppressive. And the reference here is not to hog cholera alone which every year and for long successive years has slain its millions, but to various other troubles, as swine plague, rheumatism, paralysis and breaking down of the limbs. Add to these thousands and tens of thousands of weaklings, which die on both sides of the portals of existence, and are thus carried off to an untimely sepulture.

Hog cholera is a germ disease as everybody knows, and will in consequence attack the bacon pig as well as the lard pig. But will it attack him as readily or will he fall a prey to it so easily? I do not think so. It would not be reasonable that he should, else stamina is no safeguard against disease. But it is in some degree a safeguard against disease, or the testimony of all the centuries with reference to this matter has been most delusive. The greater exemption of the bacon pig from attacks of hog cholera and the less percentage in the mortality when so attacked has not perhaps been demonstrated by actual test. In the absence of such demonstration, allow me to ask this question, if hog cholera were to swoop down upon your herd today, would you not feel less alarm if conscious that your animals were possessed of the best of vigor, than if you knew that they were already in a rickety and enfeebled condition as to physical strength?

But are not pigs of the bacon types harder feeders than those of other types? I believe they are. The experience of all the past has tended to show the close relation between the compact form, that is to say, the form of the lard hog and easy keeping qualities. The inference, therefore, is legitimate, that the more distant the remove from this type the more food relatively that will be used in making a pound of pork. So far as known to the writer it has not been demonstrated by experience that the bacon pig is a harder feeder than the lard hog. But in the absence of such demonstration it will be fair to concede this. We must not leap to the conclusion, however, that bacon swine are hard feeders. The bacon hog is long in the side and less broad than the Poland China, but he is not by any means so hard a feeder as the razor back, which is probably no longer in the side. Good digestion is a matter of transmission as well as form, hence the feeding qualities of the bacon pig have been improved by generations of careful breeding. The most that can be said, therefore, in the present state of our knowledge is, that the bacon pig, though probably not so easy a keeper or feeder as the lard pig, is not a hard feeder.

The comparison, therefore, stands thus: The bacon pig is away ahead of the lard hog in strength of bone and in the capacity to graze well, a quality which strength of bone brings with it, in good breeding and nursing qualities, and in all round stamina and vigor. And the lard pig is probably somewhat ahead in the quality of easy feeding.

Is it not true, therefore, that the swine growers of these United States will be compelled in the light of self-interest to grow the bacon pig? But they will also be compelled to do so to meet the growing taste in favor of leaner meat. Evidence of this growing taste is found in the discrimination so pronouncedly shown against the ponderous steer and the heavy lamb. And in the higher price that dealers pay even now for pork of the bacon type, we can legitimately expect that that difference will be increased. Even though our relations with the British market should remain as now, is it not evident therefore that our growers of swine will be compelled to grow the bacon pig, at least in the modified form?

Some years ago the Ontario swine breeders began to recognize this fact. They did not want to recognize it, since they had been accustomed to grow only the lard hog. The agitation in that country in favor of bacon swine began some twelve years ago. The breeders, like the Tuscan foemen at the bridge who laughed so loud when they saw the red blood flow from the veins of Rome's brave defenders, also laughed loud at the idea of the bacon pig. They said he was a rough brute, that his nose was long, that he could outrun a greyhound and that he could jump over a paling six feet high without touching it. What are those men doing now? Why, they are growing bacon swine. Twelve years ago there were virtually no bacon pigs in Ontario. Today, as represented in the Yorkshire and Tamworth breeds and their grades, and in the lengthened form of the Berkshire, they comprise the bulk of the pigs in the country. Ontario farmers are now growing pigs which produce bacon that for some time past has sold for 12 cents to 15 cents more per 112 pounds in the English market than American bacon. They are growing pigs, some of which brought them last summer 6 cents per pound live weight, when pigs were selling in Chicago for 4½ cents per pound live weight, and in Buffalo for a little less than that price. And they are growing pigs which sell for ½ cent to 1 cent more per pound in the home market than can be obtained for the old fashioned style of hog. These results are not so bad from hogs which they said carried a long nose, could run like greyhounds, and could clear a paling six feet high. If but half such results could be obtained from them on our side of the line, it would surely pay to bring them in.

How then are we to grow the bacon pig which promises so much to this country? Are we to throw aside the breeds that we have been improving and perfecting through past decades? Are we to supplant them with pigs of alien blood possessed of the bacon form and imported from other lands? No, we can not make the change in that way from sheer paucity in bacon material. It would require not less probably than a quarter of a century thus to supplant our present breeds, nor is it at all necessary. We can soon be possessed of bacon types by using such blood as we have. To secure such transformation is simply a matter of breeding, selection and feeding, with such material as we have. Such a change can be quickly made. When the bacon idea was first mooted in Canada, as has been shown, farmers fought it, and they fought it derisively. Berkshires were numerous in Ontario at that time and of very excellent quality, judged by the prevailing standards. None argued so strongly against this innovation as the breeders of Berkshires. But when they saw that the incoming tide was not to be resisted, they set to work modifying the form of their favorites and with the result that today in Ontario the Berkshire pig goes far to meet the bacon ideal, and yet it retains its grand feeding qualities.

All the existing breeds are not equally well adapted for such transformation. The least well adapted are those breeds which are farthest removed from the bacon type, and the best adapted are those breeds which at present most nearly resemble the bacon type. With some of the short-bodied, short-limbed, thickset and early maturing breed, transformation

would be slow. With these it would probably not be well to try to make the change. Such are the small Yorkshire, the Essex and Suffolk. With their easy feeding qualities and their early maturity, they would seem to have another mission to fulfill, that is to say, the mission of supplying the local trade with quick grown, tender, handy weight pork.

The change can be much more quickly made with the middle breeds, as the Berkshire, the Poland-China, the Duroc Jersey, the Cheshire and the Victoria, and also with the large breed, the Chester Whites. But with these it can not be made with equal dispatch, since some of them are considerably nearer to the bacon form now than others. But with any of them a wonderful change could be made in a few generations.

How shall such a change be made? First, by selection in breeding, and second, by feeding and management. The breeder must first consider the ideal which he is seeking, that is to say, a pig long and deep in body, but only moderately wide. He wants a moderate length of head and neck and limb, and much quality and strength of bone. He wants lots of hair of medium fineness, whatsoever the breed. He wants more of length in the coupling of the female than in the coupling of the male. The first are a safeguard against delicacy and hard feeding qualities, and the second is an aid to the sow in all the processes of maternity. He should avoid equally excessive length and narrowness of coupling and the opposite of these. He should look for even lines and much of smoothness of outline in both sire and dam. And as length of body increases a gentle arch of the back should increase also to give it the requisite length. Having thus secured his ideal, let his selection within the breed be most rigid and consistent, and in the first generation he will have a considerable advance in the direction of the bacon form. In a very few generations he will have an animal far removed from the weaknesses and dangers that have to so great an extent brought down calamity on the lard hog during recent years. And where the feeding and management have at the same time been consistent he will have a very excellent bacon producer.

But what is meant by suitable feeding and management? Why, it means many things. It means first, that the swine shall be grown chiefly on nitrogenous foods. Second, that they shall be fattened on foods both nitrogenous and carbonaceous; and third, that they shall be given a due amount of exercise during the period of growth and of fattening, but more especially during the former.

They must be grown chiefly on nitrogenous foods, that is to say, they must be grown on such foods as the milk of the dam, skim milk and pastures of grass, clover, alfalfa, rape and vetches, with shorts, oats, barley, corn and peas as adjuncts. The milk of the dam will be obtained by feeding such foods as bran, shorts, oats and field roots, with a fair proportion of barley or corn and oil cake. The idea of keeping pigs chiefly on corn only for successive generations, even in the corn belt, is outrageously absurd. The men who do so, it seems to me, ought themselves to be restricted to a diet of corn. Would they not under such conditions soon become more rickety than their corn fed swine? Some Canadian dealers are crying out against the use of clover and grass in growing bacon, especially in the later stages of growth. Let them continue that cry long enough and they will bury the bacon idea a thousand fathoms deep. The idea of growing pigs from generation to generation without grass or clover pastures is too absurd for anything.

They must be fattened on nitrogenous and carbonaceous foods; of course the latter must predominate. These foods include corn, barley and peas as grain, and some field roots, pumpkins and oil cake may be used as the nitrogenous complement. Peas alone, where they can be successfully grown, make a good fattening food. But in the corn belt the chief fattening food must be corn. Our Canadian brethren are crying out against the use of corn when finishing bacon, but corn is an imported food into Canada, and politics are still alive in that country. When their pork dealers tell us that corn during the finishing period will not make as firm or as perfect bacon as some other foods, such as barley or peas, their testimony should be accepted, but when

they tell us that good bacon can not be made by feeding a fair proportion of corn, their libellous testimony should be flung back at the designing source from whence it came.

Corn properly used is one of the greatest gifts ever bestowed upon a nation, but it can be easily abused.

The swine must have suitable exercise. This in addition to keeping the pigs healthy creates muscle—that is to say, lean. Of course the exercise they get in the pasture will be sufficient. The fattening period accentuates the streaking in the bacon, and if, while the animals are being fattened, they get some exercise, the meat will be firmer than if such exercise is absent.

But there is another way of getting bacon quickly—that is to say, through introducing sires of the improved Yorkshire and Tamworth breeds, and crossing them upon the short-bodied sows that abound everywhere. More especially in the corn belt would such a course be judicious. It would bring renovation and healing to the swine industry in that region. It would in the first generation produce a growthy and vigorous animal of bacon type. It would impart bone and stamina and breeding qualities and everything else that is good. You say you don't believe it. Why don't you believe it, my brother? Have you ever tried it? I have. When Secretary Wilson uttered those now famous words in favor of the Tamworth as a bacon producer, he knew what he was talking about. Did many of those, therefore, who ridiculed the idea of introducing Tamworth blood into America know what they were talking about? This I have no hesitation in asking. But there is one great obstacle in the way of introducing such a cross. It is the scarcity of the material. All the makes of both breeds in all England could be absorbed by a single state in the corn belt. Why should any man cry out against the cross who has never tried it?

The bacon pig, therefore, it seems to me, is the goal of swine breeding in America, regardless of the British or any other market. Of course if we can capture the British market so that we can enter it on an even footing as to prices with the Danes or the Canadians, so much the better. Or, if we can improve our bacon so that we can improve the price abroad, we will have made a distinctive gain. But in the absence of such attainment it will be to our advantage to grow swine of the bacon type. Again, I say we shall be compelled to grow the bacon pig. (Applause.)

A general discussion followed.

Prof. Craig then gave an interesting talk about cattle breeding and feeding, and there was a general discussion until 12 o'clock, when they adjourned to meet again in the afternoon at 1:30.

THURSDAY AFTERNOON.

Afternoon session called to order by the President. The first on the program was "Horse Breeding," by Norman J. Coleman, of St. Louis. As Mr. Coleman was unable to be present, he sent his paper by Mr. Levi Chubbuck, editor *Coleman's Rural World*, who then read it.

Before reading Mr. Chubbuck said:

Mr. Chairman, gentlemen:—I hope you will indulge me to some extent. I know you are disappointed in not having Governor Coleman here to present this subject in person, so I will ask your indulgence in my reading his paper. I know it will not come as well from me as though he himself presented it. He then read the paper.

Mr. Chairman and Gentlemen: The limited time that I have at command will enable me to discuss but very briefly the breed of trotting horses. Let me remark at the outset that in speaking of their good qualities, it is not with the purpose of disparaging other meritorious breeds. There are many persons who think if a good word is said in behalf of one breed, and they are engaged in producing another, that it is an attempt to injure the breed they are raising. That is a mistake. There is plenty of room for all classes of

breeders. Each breed must stand on its own merits. Each has a place to fill, and, as it fills it well or illy, will be its standard of success.

The American farmer is confronted with the conditions that there is over-production in every line of products, and hence low prices, scarcely living prices, prevail. He is at his wit's ends what to produce to make a living for himself and family. He studies the home markets and the foreign markets to settle this matter in his own mind. If he is breeding horses, he carefully considers what the home and foreign market demand. He studies their wants and should attempt to supply them. He asks himself what kind of a horse commands the highest price at home and abroad? And this question is very easily answered. He has but to refer to the sales that are recorded in all of our leading papers, both at home and abroad, to learn that the American trotting horse lead all other classes, both in price and in demand. In all the great nations of Europe, the American trotting horses are now to be found in limited numbers. They are popular there. In contests of speed they have everywhere been triumphant, and the demand for them is everywhere increasing. Buyers from Europe are to be found in all our markets, and at all of our great auction sales. On account of their growing popularity the demand will yearly increase, and those who are engaged in producing them ought to reap a rich harvest. The home demand, as well as the foreign, is active for the trotting horse, if of the right kind. Buyers have much trouble in finding enough of those of the proper size and style to meet their wants. Many breeders have been sacrificing other qualities for speed. This has been a mistake, and those who have pursued this course now regret it.

While speed is a quality in the trotting horse which should never be lost sight of, there are other qualities of equal importance which must ever be kept in mind and duly regarded by the breeder. Size is an element of great value, and the fact that two of the fastest harness horses in the world, Star Pointer and Joe Patchen, are both over sixteen hands high, goes to show that large size is no detriment to speed, and the number of heats in which they have made the fastest time ever made in harness show that they possess the endurance to resist wear and tear. As size is an indispensable quality in many classes of harness work, the intelligent breeder will be sure to secure it, so that if the horses he produces should not have great speed, they will have enough to meet the wants of those who may want them as roadsters, carriage teams, coachers, or for some other kind of work.

Another quality that should be regarded by the breeder is style. Why will one horse bring double or treble what another will of equal size and speed? It is because he is handsomer, more stylish and will attract greater attention. The day of breeding plain horses, homely horses, small horses, has passed, and particularly if profit is one of the objects of breeding. While in the formation of the breed size and style did not cut much of a figure with some breeders, yet the day has come when these qualities are indispensable to success in the breeding business. Breeders must produce such horses as the public wants if they expect to sell them. The public wants horses of size and substance, of beauty and style, with speed combined. Such horses can be produced. One need but go to any of our large trotting meetings to find stallions of the choicest breeding that have size, style and speed combined that would be suitable to put at the head of any breeding farm. If mares of similar qualities have been selected and are mated with such a stallion, and the produce have the proper care and attention, the result can not be questioned.

The law of breeding, that "like produces like or the likeness of some ancestor," is inviolable. And here comes the rub, "or some ancestor." How important, then, becomes the matter of ancestry. If of high character and excellent qualities, it matters but little whether the progeny takes after the ancestry or the parents. But, if the ancestry are of low character and poor quality, the produce are liable to inherit their traits, and the results will be most disappointing. The breeder must know positively of the ancestry of his breeding animals. There is only one way by which he can properly get that knowledge, and that is by the records of the breed which he is producing. If the breeder purchases real estate he carefully traces the chain of title in the records containing the transfers thereof, recorded by the proper officers.

Records are kept of the lineage of all the pure breeds of domestic animals, so that purchasers may know what they are buying, from what ancestry the animals have descended. If the breeders of Shorthorn, Hereford, Holstein, or Jersey cattle or of Berkshire, Poland-China or Duroc-Jersey swine, or of Cotswold, Southdown or Shropshire sheep, and so of other breeds of domestic animals, are careful to register their animals, far more important is it that the horse, the king of all domestic animals, the most beautiful, the most useful, the most valuable, should be carefully registered, that his breeding may be exactly known. Whatever arguments can be used in favor of herd books or registration books for other domestic animals, can be used a hundred times more effectively for registering the trotting horse and that there should be any dissenters to such a proposition is remarkable, particularly when the intelligent breeders of all other domestic animals consider registering indispensable.

Those who have neglected to register their breeding animals grieve over their error. Only last week I was on the farm of a breeder who had quite a lot of very fine Shorthorn cattle, equal to any I had seen for a long time. I asked him if they were pure-bred. He said yes. I asked him if they were registered. He said no; that he could have registered the stock from which they descended at one time, but had neglected it, and now it was too late, and he was selling them at less than half the prices the same animals would bring if he had attended to registering them when this could have been done. What an argument this is in favor of breeders keeping their breeding animals properly registered. It is the only way the genealogy and history of domestic animals can be perpetuated. It is the only way that purchasers may know what they are buying. It is the only way to perpetuate a breed. With the view of establishing a breed of trotting horses and keeping it pure, many years ago the American Trotting Register was established, in which the pedigree of trotting horses could be registered. Certain rules have been established to entitle them to registration, and when by their breeding they come within those rules, they can be registered, and any breeder who neglects to record his animals in this registry is short-sighted and neglectful of his best interests.

The breeder should form in his own mind the type of a horse he desires to produce and keep that type constantly in mind as the Polar Star of his hopes. He should have some definite object in view. He should have in his mind's eye some goal to reach. He should have a purpose in breeding, and every coupling should be in the prosecution of that purpose. He should have an ideal in his mind of the horse he wants to produce, and every step he takes in breeding should be towards that object.

Having in his mind a clearly defined type of the horse he wants to produce, if he understands the law of breeding, and will follow those laws, he will eventually reach the object of his ambition. It is just as easy to produce a type of trotting horses as it is to produce a type of cattle, such as the Hereford, Devon, or Jersey. Horses can be bred so as to match as exactly as cattle do, but it will take generations of skillful breeding to perfect such a type. It can be reached only by slow degrees, but it is progress in the right direction, and leads to ultimate success.

If a community of breeders could agree upon a type in advance as to size, color, style, etc., and all breed constantly towards that type, they would attain the end much sooner than would mere individual efforts, and they would establish a popularity for their horses as they advanced, which would create a demand and bring the best buyers from all parts of the country and from Europe.

Breeding as now generally conducted is without system, without a clearly defined object. Hence, we see horses differing in size, in conformation, in color, in style, in action—unlike in nearly all respects, no two of them matching in every hundred produced, and generally more unlike in color than the colors of the rainbow.

The type determined upon, and we will say in color it is a bay; size, 16 hands; weight, about 1,100 pounds; body well formed; good necks, heads and tails; well carried; action bold, yet graceful. Here we have a type that would be in general favor and general demand. The breeders should aim at the type desired and mate horse and mare combining the characteristics described as nearly as possible, and then by selection of the best of the produce continue the work of breeding, and in time a race of horses can be established as true in color, size and general appearance as is to be found in well established breeds of cattle, sheep, hogs or any other animals.

Combine with this type the most valuable qualities of the horse, say trotting speed, and plenty of good mares and stallions answering to the described type and having great trotting speed can be found, and we can have the best, the most valuable breed of horses in the world. Breeding in the unsystematic, haphazard way the American breeders have been doing is all wrong. It is not necessary to take the type we have described, if any other suits any one better. Let one have a clearly defined object as to the kind of horse he wants to breed, and then breed towards that object constantly—never away from it. Aim towards the mark set, and if you can not reach it, come as near as possible. Go forward, not backward. There has been too much promiscuous breeding of horses. Visit any of our breeding farms, and you will find almost as many colors in horses as there were in Joseph's garment, and they will differ more in size, form and action than they do even in color.

The breeder should aim to produce animals that are absolutely sound. To this end he should know that not only are the parents sound, but that the families from which they were descended had no defects that were liable to be transmitted to their descendants. Tendencies to unsoundness are just as liable to be transmitted as are the choicest qualities. One must not expect that the virtues only are transmissible. The vices and the weaknesses are transmitted as well as the choicest qualities, and sometimes they will skip a generation or two, and then break out with great violence. Hence the breeder, to be successful, should study the genealogy of the family he thinks of adopting to see that it has no qualities that he does not wish to perpetuate. While no horse or family is entirely perfect, there are enough that are near perfection without obtaining qualities that are undesirable and that may injure the value of the animals produced.

But animals may be sound and yet lack the necessary stamina to be highly useful. Wear and tear qualities are of the highest value. Some horses have strong constitutions, just as some men have, and can endure great trials and receive no great injury therefrom, while other horses are faint-hearted, so-called, and have not the pluck and courage or the physical or mental qualities to compete in great trials of speed or endurance. The wise breeder will aim to breed the best, knowing that it is only from the best that the best can be produced. Parents with weak constitutions transmit weak constitutions, while from the strong, good constitutions may be expected.

It has taken more than half a century to develop the trotting horse to his present degree of perfection. Horses possessing trotting speed have been mated with mares possessing it, and this practice has been continued from generation to generation until the progeny of developed sires and mares reproduce speed with great certainty. The mating has not always been done wisely, as speed has been the chief object sought, and a lack of size and quality has in many cases been the result. Still the trotting horse of today as a class have greater endurance than any other class that can be named, not excepting the thoroughbred or running horse. They will fight out their races of five and ten heats, and show less weariness than other classes of horses put to their greatest test for a similar length of time.

As the trotting horse is a very intelligent, tractable and serviceable horse, in almost any capacity, he should be bred of sufficient size and strength and style to fill any requirement. If this is done he is salable for the carriage or coach team, for the surrey or buggy, for the use on our streets in our cities or towns, for all purposes. He makes the model cavalry horse, and, indeed, he fills almost any requirement for which the horse is needed. As a horse for general farming purposes he has no superior, as I know from an experience of half a century. As all horses that are bred for speed do not possess enough

to become successful race horses, the point I wish to most earnestly enforce is to breed such a class of trotting horses as will command good prices for other purposes, so there will be no blanks in breeding. Horses 16 hands high, of good color and style, good bone and muscle, heavy quarters, wide and deep around the heart and lungs, sound and of good disposition, possessing good action, can be raised with much certainty and at a profit, and will find buyers in every market, even if they do not possess phenomenal speed; but if a system of wise breeding has been pursued, and sires and dams have been selected of the kind we have mentioned, possessing, in addition to these desirable qualities, trotting speed of a high order, there is no reason why champion trotters should not now and then crop out, commanding thousands of dollars; but even if they do not, the breeder has produced a class of horses of which he may be proud, and which will bring him good returns, always being in demand for almost any purpose. But it is one thing to breed, and quite another to feed and condition so as to properly mature and develop the horse. Breeding properly is only half the work, and not even that, as its benefits will be lost by improper care and treatment after the foal has been produced. And even the treatment of the mare while bearing the foal and her condition at the time of coupling have great influence on the progeny. The proper condition of both sire and dam at the time of mating is a matter of the highest importance. Both sire and dam should be in full vigor and strength. A fat, unworked and undeveloped stallion, however high his breeding, is unfit to be used as a sire. An abundance of exercise, at the very work his get are expected to perform, will have a beneficial influence on his progeny, and the same rule applies to the dam. To intensify any trait or function, the more it is properly exercised in the parents, the more certainly will it be transmitted. By a lack of use of such trait or characteristics, for a few generations, it will almost entirely disappear. Sires and dams that are expected to produce trotters should trot themselves, and the higher their development the more certainly their offspring follow their example.

There is a great difference in sires and dams of the same breeding. Some are more prepotent than others, arising from some cause that we are unable to explain, but probably from some peculiarly favorable condition of one or the other parent, or both, at the time of mating. The same principle applies in the human family. You have frequently seen one child emerge from a large family of children and display transcendent ability as an orator or poet, or statesman, or in music, or art, while the other children of the family remain in the deepest obscurity. With our domestic animals we should take advantage of such cases to perpetuate the remarkable traits that have so manifested themselves. As one example of this in the trotting world we need only refer to Rysdyk's Hambletonian. A race of giants has developed from his loins.

But the foal produced, his proper care and treatment should become a matter of constant study. Not a day should pass for the first two or three years of his life that he is not making growth and progress. He should have the choicest feed and in as great variety as possible, so as to round out and fully develop all his physical powers. He should have, whenever it is possible, the freedom of the lot or pasture, so as to get that healthy exercise which is indispensable to properly develop his physical organization. He should have shelter from storms and be protected from the inclemencies of the weather. He will then grow up finely proportioned, fully developed, an object of beauty and be admired by all who see him. (Applause).

President: The subject is now open for discussion; if there is anything to be said along this line we would like to hear it. The horsemen have been keeping very quiet. Everyone has behaved very nicely, and now is their opportunity to get in their work. We have the president of the Horse Breeders' Association here and he ought to make himself heard at this time.

Mr. J. H. Kincaid, of Athens: I am sure that the Governor so thoroughly covered the grounds that I have hardly anything to say. He has covered my grounds exactly. I should spoil it if I should say anything.

Mr. Ridgely was called for.

Mr. Charles Ridgely, of Springfield: I would like to spend some time on this subject, but as I did not hear the paper read I know nothing about it. I

should have liked to heard it. I am reminded of the story of the school children; they were having an examination in the catechism by the bishop. I believe the first question that came up was, "Who made you?" The second, "What are you made of?" I am here to answer a question that I know nothing about, and I feel like the little boy in that class. The first boy had gone home and the second boy was to answer the question. "Well, he said, I am made out of dirt, but the first boy that God made had the stomach ache and went home." I am sorry I was not here when that paper was read, but I can tell a story if I can not say anything in regard to the paper. There was once a man that was called upon to answer for selling whiskey punch. He was asked by the judge how it was made. He said, you take a little of this and a little of that and a little of the other and you put it into a glass, and then you do not take any. I once had some horses, and corn was not good enough for them; they stayed in the stable, they would not eat in the stable so we took them out for exercise. And I never had any trouble after that to make them eat. It is a good deal that way all the way through. My horses, after I had exercised them in this way, were not content with eating their heads off, but they turned around and began to eat mine. I came home last night from a visit to Indian Territory. I noticed the advantages that those people have down there for the breeding of cattle, how much they have improved in everything of that kind. I was quite surprised to see the very great progress they have made in the improvement of the breeds. Everything seemed better, a good deal better than it used to be. The hogs of that country seemed to be just as good as ours, and the cattle are being improved very much. Mr. Chairman, it is very hard to talk about a paper you have never heard. As it is, I am glad to be at the convention. I would like to see this horse business get into a better condition, full of interest and which a man can amuse himself to a great rate. I am very much obliged for the time you have given me.

Mr. Kincaid: Mr. Ridgley spoke of the horses eating their heads off and starting on his. I have some horses that are eating their heads off, but I don't think they have begun on mine. Well, in the first place, I work the horses on the farm. I have a number of times had six or seven or eight or ten of the best breed of horses on the farm and we work them all. About the time of the panic in the horse business we began to cut down expenses and we cut it down very low in regard to handling the horses; we did not handle very many. And in the fall we got them up and broke them to work and worked them a little in the spring and sold them.

President: Is there anything further? If not we will proceed to the next. Before doing so, Mr. Anderson has something to say to the association.

Mr. Anderson, of Chicago: It is a little report I would like to make in reference to the Live Stock Breeders' Association. He then read the report as follows:

"Hon. A. P. Grout, President Illinois Live Stock Breeders' Association:

At a meeting of your association in the winter of 1896 and 1897 a resolution was passed asking the Illinois State Board of Railway Warehouse Commissioners to aid your efforts in securing for the "feed farmers" of Illinois the same rate in stock cattle as that enjoyed by neighboring states. Having framed that resolution and requested its passage and in turn being deputized by your association to watch the results of your efforts, I am able to report that the matter was given immediate attention by the State Commission, resulting in the application of the 75 per cent stocker rate on cattle shipped from the respective live stock markets to the section of the country where their return to the same market was anticipated.

"I regret that I have only data at hand reflecting the beneficent effect that this action has had on the cattle feeding of Illinois, through the Union Stock Yards, Chicago; but these alone are of such magnificent proportions as to add a million and a half dollars to the cattle production of our State in the year 1897; while under the same influences it became greatly augmented in 1898.

In order to make this showing comprehensive, I select from an official report of the Union Stock Yards & Transit Co., the cattle shipments over the railways leading west from Chicago, over which none are shipped for slaughter, showing those which have gone directly to the pastures and feed lots of Illinois. The increase by railways is as follows:

Chicago & Alton.....	1,744
C. B. & Q.....	23,435
C. & E. I.....	4,435
C. M. & St. P.....	4,626
C. & N. W.....	16,469
C. R. I. & P.....	6,085
C. & G. W.....	1,579
Ill. Central.....	5,574
Wabash.....	7,069
Total increase.....	71,061
Total shipment of stockers.....	209,615

"Owing to the fact that for two or three years the bulk of the stocker cattle handled on the public markets were young things, the increase in value ranges from twenty to fifty dollars per head at maturity. At the lowest estimate this increase would add one million and four hundred thousand dollars to the marketable value of the State, enhancing the value of grass, crops, etc. Increasing the receipts of the Union Stock Yards and Transit Co., on yardage alone \$40,000, to say nothing of the increased freight earnings of the railways, thus practically demonstrating the value of the co-operation of those having common interests.

"After thanking you on the part of the Union Stock Yards and Transit Co., I would respectfully suggest that a word of appreciation be expressed to the State Board of Railway and Warehouse Commissioners for their prompt action on behalf of those interested in protecting, on an equitable basis with other States, the land producing value of Illinois, and also to the railway management for their immediate response when the community of interests was fairly presented by your committee appointed for that purpose.

"Respectfully yours,

"W. P. Anderson,

"*Railway Bureau of Live-stock Statistics, Chicago, Ill.*"

Following this interesting and suggestive report as given by Mr. Anderson a vote of thanks was extended to him and the committee consisting of Messrs. A. P. Grout, John H. Kincaid, J. H. Pickrell and Fred H. Rankin, for their interest in the matter and for the result of their painstaking work.

The next topic on the program is an address, "The Horse and His Market," by Prof. John A. Craig, of Ames, Iowa.

Mr. Craig then gave his address, which he illustrated with various pictures.

A general discussion followed this most able and instructive address, which was one of the best things of the meeting, and it is regretted that it can not be produced in full.

President: We will now proceed to the next topic on the program, which is

HORSE BREEDING FOR MARKET.

By Col. F. J. Berry, of Chicago.

I desire to impress upon the breeders and farmers at this meeting the great importance just at this time of commencing immediately and making a vigorous effort to improve all branches of live stock.

Illinois, the garden of the world, the finest soil, the finest climate, with intelligent, educated and industrious people, should have the finest stock in the world of all classes—horses, cattle, sheep and hogs—but I am sorry to say that for the last few years the stock raising industry has been on the decline, and the quality of the different kinds of stock has been greatly reduced, and I for one feel greatly interested in this work and feel that our markets, the times,

offer every inducement to the agriculturists of this country and farmers to put their best efforts in operation and commence systematically with all science of the times and the improvements of the day, and every effort should be made to place these great subjects before the farmers and breeders of Illinois.

This is a subject that has been most wonderfully neglected, and especially the breeding of fine horses. Our large export trade, which has all sprung up within the past few years, has drawn heavily upon the best classes, as it requires the best quality to fill this demand. Also the American demand is increasing. Trade has been getting larger in the last year than it has been at any time in former years, and we believe it will continue to grow larger, and it has, as I said before, drawn heavily upon the better classes, so much so that they have already got scarce and high. And with the increasing foreign demand, which is larger every year, and business reviving throughout the country, it makes a stronger demand for horses. And not only our foreign trade demands the best quality, but the grade has been raised in our home markets. It takes a better horse to supply our home trade. Thus not only the supply has been reduced, but the quality is greatly reduced. There are plenty yet of common, small and ordinary stock in the country, and they are still low and will be for a long time, as there is still a large supply of this cheap grade.

The breeding system must be revolutionized and low grades of horses must be dropped out. They are a thing of the past. Once these kinds sold high, but now they will not pay the cost of breeding and raising them, and today you will hear people cry out all over that horses are still cheap. But I tell you this, it is the cheap kind that is cheap, as they are a thing of the past, and the sooner our people become educated in breeding good horses, the highest class of light harness or coach horses, or the heavy draft with all the quality, and all the between classes, strictly of their class and good quality, just so soon the horse industry of this country will be one of the leading industries. For I believe that there is no class of stock raising that will pay the farmer to raise, like the best classes of horses, when managed with system and have a proper knowledge of the business. First let the farmer make a study of these things; study the demand of the market, making every effort to post himself on the best principles to meet that demand, and he will surely get something that the people want, that the people are willing to pay a high price for, and his efforts will be crowned with success. And with the strong demand and short supply, the best quality brings the best prices and is the most profitable.

We have arrived at that day now when low grades of stock, common and rough ones of any class, will not pay to raise. They are a poor investment and a bill of expense and loss to the producer, and means low and poor returns and a failure on the investment.

What I say of the horse industry, I will say the same of all other branches of stock raising. It is the best quality of the different kinds of stock that pays to raise. So let us not fail to place these great questions before the people of this country in so forcible a manner that a great enthusiastic influence may be revived throughout this country that shall result in the improvement of all branches of stock, and may it so influence us that we may lead the world in producing the best quality of all branches of stock.

I very much regret that I can not attend your meeting, but have an engagement at the New York Horse Show.

Remember me with kind regards to all the breeders, and say to them I bid them God speed in the improvement of all kinds of live stock.

Kindly bring up at this meeting if they can not change the date of the breeders' meeting so as to not have it conflict with the New York Horse Show.

A number of horsemen took part in an interesting discussion.

State Veterinarian Lovejoy, of Princeton, was called upon and addressed the meeting.

After extending a vote of thanks to the Supervisors of Sangamon county for the use of the court house, the meeting voted to accept the courteous invitation of Mr. Samuel Prather to visit the Sattley Plow Works.

There being no further business, the meeting adjourned.

A. P. GROUT, *President.*

FRED H. RANKIN, *Secretary.*

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